

2013-1510, -1543

---

---

**United States Court of Appeals  
for the Federal Circuit**

---

IN RE KATZ INTERACTIVE CALL PROCESSING PATENT LITIGATION

-----  
RONALD A. KATZ TECHNOLOGY LICENSING, L.P.,  
*Plaintiff-Appellant,*

v.

DHL EXPRESS (USA), INC. and SKY COURIER, INC.,  
*Defendants-Cross Appellants,*

*and*

DHL HOLDINGS (USA), INC.,  
*Defendant.*

---

---

*Appeals from the United States District Court for the Central District of California  
in Case Nos. 07-CV-2192 and 07-ML-1816, Judge R. Gary Klausner*

---

---

**NON-CONFIDENTIAL APPELLANT'S OPENING BRIEF**

LORI R. MASON  
LOWELL D. MEAD  
COOLEY LLP  
Five Palo Alto Square  
3000 El Camino Real  
Palo Alto, CA 94306  
(650) 843-5000 (telephone)  
(650) 849-7400 (facsimile)

FRANK PIETRANTONIO  
JONATHAN G. GRAVES  
COOLEY LLP  
One Freedom Square  
11951 Freedom Drive  
Reston, VA 20190-5656  
Tel: (703) 456-8000  
Fax: (703) 456-8100

SARAH J. GUSKE  
COOLEY LLP  
380 INTERLOCKEN CRESCENT, SUITE 900  
BROOMFIELD, CO 80021-8023  
(720) 566-4000 (telephone)  
(720) 566-4099 (facsimile)

*Attorneys for Appellant Ronald A. Katz Technology Licensing, L.P.*

October 8, 2013

## **CERTIFICATE OF INTEREST**

Counsel for Appellant Ronald A. Katz Technology Licensing, L.P. certifies the following:

1. The full name of every party or amicus represented by me is:

Ronald A. Katz Technology Licensing, L.P.

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is: None.

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are: None. Ronald A. Katz Technology Licensing, L.P. is a limited partnership

4. The names of all law firms and the partners or associates that appeared for the party now represented by me in the trial court or are expected to appear in this court are:

Cooley LLP:

Frank V. Pietrantonio; Jonathan G. Graves; Lori R. Mason; Lowell D. Mead; Sarah J. Guske; Linda A.F. Callison (former); Justin P.D. Wilcox (former); Thomas F. Poche (former)

Covington & Burling LLP (and formerly at Heller Ehrman LLP):

Dale A. Rice; Michael K. Plimack; Andrew C. Byrnes; Robert T. Haslam

Bouchard Margules and Friedlander:

John M. Seamon (former)

Law firm and attorneys who are expected to appear as Counsel in this Court:

Cooley LLP:

Frank V. Pietrantonio; Jonathan G. Graves; Lori R. Mason; Lowell D. Mead and  
Sarah J. Guske

## **TABLE OF CONTENTS**

	<i>Page</i>
CERTIFICATE OF INTEREST .....	i
TABLE OF AUTHORITIES .....	vi
I. STATEMENT OF RELATED CASES.....	vii
II. STATEMENT OF JURISDICTION .....	1
III. STATEMENT OF THE ISSUES .....	2
IV. STATEMENT OF THE CASE .....	3
V. STATEMENT OF FACTS .....	7
A. Patented Technology Background.....	7
B. DHL’s Accused Systems.....	8
1. Brite IVR System .....	8
2. Edify IVR System .....	16
3. Genesys IVR System.....	17
C. Infringement Issues on Appeal.....	19
1. Claim 61 of the ‘285 Patent.....	19
2. Claim 34 of the ‘120 Patent.....	23
3. Claim 98 of the ‘863 Patent.....	24
4. Claim 19 of the ‘551 Patent.....	26
D. Collateral Estoppel Issue on Appeal .....	28
VI. SUMMARY OF THE ARGUMENT .....	29
VII. ARGUMENT.....	31
A. Standards of Review .....	31
B. The Court Erred in Granting DHL Summary Judgment of Non-Infringement of Claim 61 of the ‘285 Patent .....	31
1. The district court’s implied construction of the “means for processing...” limitation is without support .....	32
2. Genuine issues of fact preclude summary judgment of non-infringement under the proper construction of “means for processing...” .....	36

## **TABLE OF CONTENTS**

### **Continued**

3. The district court improperly ignored evidence showing a genuine issue of triable fact under both the incorrect and correct constructions of “means for processing...” .....	37
C. The Court Erred in Granting DHL Summary Judgment of Non-Infringement of Claim 34 of the ‘120 Patent .....	39
1. “DNIS” .....	40
a. The district court’s claim construction of “DNIS” is inconsistent with the intrinsic and extrinsic record .....	41
b. Genuine issues of fact preclude summary judgment of non-infringement under both the proper construction of “DNIS” and under the court’s incorrect construction .....	45
c. The district court’s summary judgment of non-infringement under its erroneous construction is legally flawed .....	49
2. “Pin-Number Data Based Upon Limited Use” .....	51
a. The district court’s implied construction of “pin-number based on limited use” is inconsistent with the intrinsic and extrinsic record.....	51
b. Genuine issues of fact preclude summary judgment of non-infringement under the proper construction of “pin-number based on limited use” .....	53
D. The Court Erred in Granting DHL Summary Judgment of Non-Infringement of Claim 98 of the ‘863 Patent .....	53
E. The Court Erred in Granting DHL Summary Judgment of Non-Infringement of Claim 19 of the ‘551 Patent .....	54
F. The District Court’s Collateral Estoppel Ruling Regarding ‘120 Patent Claim 34 Should Be Vacated If This Court Vacates the PTAB’s Decision Affirming the Examiner’s Rejection of Claim 34. ....	55
VIII. CONCLUSION AND STATEMENT OF RELIEF SOUGHT .....	57
ADDENDUM	
CERTIFICATE OF SERVICE	
CERTIFICATE OF COMPLIANCE	

**CONFIDENTIAL MATERIAL OMITTED**

The material redacted from this brief is subject to a protective order. The confidential information on pages 8-19, 21-22, 27, 29, 36-38, 44-49, 52-53, and 55 relates to the Cross-Appellants' confidential technical information, as well as documents and testimony regarding the confidential technical information, which have been designated as confidential.

## TABLE OF AUTHORITIES

### Cases

<i>Anderson v. Liberty Lobby, Inc.</i> , 477 U.S. 242 (1986).....	31
<i>Celotex Corp. v. Catrett</i> , 477 U.S. 317 (1986).....	31
<i>Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc.</i> , 145 F.3d 1303 (Fed. Cir. 1998).....	31
<i>Cybor Corp. v. FAS Techs., Inc.</i> , 138 F.3d 1448 (Fed. Cir. 1998) (en banc) .....	31
<i>Furnace v. Sullivan</i> , 705 F.3d 1021 (9 <sup>th</sup> Cir. 2013).....	31
<i>Generation II Orthotics, Inc. v. Med. Tech., Inc.</i> , 263 F.3d 1356 (Fed. Cir. 2001).....	33
<i>Hewlett–Packard Co. v. Bausch &amp; Lomb</i> , 909 F.2d 1464 (Fed. Cir. 1990).....	50
<i>IGT v. Alliance Gaming Corp.</i> , 702 F.3d 1338 (Fed. Cir. 2012).....	31
<i>In re Katz Interactive Call Processing Patent Litigation</i> , 639 F.3d 1303 (Fed. Cir. 2011).....	vii, 4, 5, 42
<i>Microprocessor Enhancement Corp. v. Texas Instruments, Inc.</i> , 520 F.3d 1367 (Fed. Cir. 2008).....	50
<i>Phillips v. AWH Corp.</i> , 415 F.3d 1303 (Fed. Cir. 2005) (en banc) .....	31, 32
<i>Thorner v. Sony Computer Ent'mt America LLC</i> , 669 F. 3d 1362 (Fed. Cir. 2012).....	32, 35, 41
<i>Vitronics Corp. v. Conceptronic, Inc.</i> , 90 F.3d 1576 (Fed. Cir. 1996).....	33

**TABLE OF AUTHORITIES**  
**Continued**

<i>Wegner Mfg., Inc. v. Coating Mach. Sys., Inc.</i> , 239 F.3d 1225 (Fed. Cir. 2001).....	33
---	----

**Statutes**

28 U.S.C. § 1331 .....	1
28 U.S.C. § 1338.....	1
35 U.S.C. § 112.....	4, 33

**Rules**

Fed. R. Civ. P. 60(b)(5)-(6).....	56
Federal Rule 60(b) .....	56



## I. STATEMENT OF RELATED CASES

In accordance with Federal Circuit Rule 47.5, counsel for Appellant Ronald

A. Katz Technology Licensing LP states:

1. There have been other appeals in or from this same civil action or proceeding in the district court before this Court, including Appeal Nos. 2009-1450, -1451, -1452, -1466, -1467, -1468, -1469 and 2010-1017, -1036 (*Ronald A. Katz Technology Licensing LP, v. American Airlines, Inc., et al.*; *Ronald A. Katz Technology Licensing LP, v. DHL Express (USA), Inc., et al.*; *Ronald A. Katz Technology Licensing LP, v. U.S. Bancorp, et al.*; *Ronald A. Katz Technology Licensing LP, v. Time Warner Cable, Inc., et al.*; *Ronald A. Katz Technology Licensing LP, v. CSC Holdings, Inc., et al.*; *Ronald A. Katz Technology Licensing LP, v. TDS Metrocom LLC, et al.*), which were consolidated for the purposes of appeal. This court—a panel consisting of Judges Newman, Lourie, and Bryson—issued an opinion in the prior appeals on February 18, 2011. *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303 (Fed. Cir. 2011) (“*Katz I*”). This court remanded issues to the district court—proceedings which led to the present appeal. Another related appeal, Appeal No. 2009-1407, -1408, *Ronald A. Katz Technology Licensing, L.P. v. General Motors*, was automatically stayed as a result of GM’s bankruptcy filing and was dismissed on May 6, 2013.

2. The following cases may be impacted by this Court's decision in the pending appeal:

- *Ronald A. Katz Technology Licensing LP v. Time Warner, et al.*, Civil No. 2:07-cv-2134 RGK FFMx (C.D. Cal.)
- *Ronald A. Katz Technology Licensing LP v. Cox Communications, Inc., et al.*, Civil No. 2:07-cv-2299 RGK FFMx (C.D. Cal.)
- *Ronald A. Katz Technology Licensing LP v. DirecTV Group, Inc., et al.*, Civil No. 2:07-cv-2322 RGK FFMx (C.D. Cal.)
- *Ronald A. Katz Technology Licensing LP v. Earthlink, Inc.*, Civil No. 2:07-cv-2325 RGK FFMx (C.D. Cal.)
- *Ronald A. Katz Technology Licensing LP v. Ameren Corp. et al.*, Civil No. 2:07-cv-4955 RGK FFMx (C.D. Cal.)
- *Ronald A. Katz Technology Licensing LP v. Citizens Financial Group, Inc., et al.*, Civil No. 2:07-cv-4964 RGK FFMx (C.D. Cal.)
- *Ronald A. Katz Technology Licensing LP v. Comcast Corp, et al.*, Civil No. 2:07-cv-6996 RGK FFMx (C.D. Cal.)
- *Ronald A. Katz Technology Licensing LP v. Consolidated Edison Co. of New York, et al.*, Civil No. 2:07-cv-4958 RGK FFMx (C.D. Cal.)
- *Ronald A. Katz Technology Licensing LP v. Continental Airlines Inc., et al.*, Civil No. 2:07-cv-4965 RGK FFMx (C.D. Cal.)
- *Ronald A. Katz Technology Licensing LP v. Echostar Communications Corp., et al.*, Civil No. 2:07-cv-6222 RGK FFMx (C.D. Cal.)
- *Ronald A. Katz Technology Licensing LP v. Fifth Third Bancorp., et al.*, Civil No. 2:07-cv-4960 RGK FFMx (C.D. Cal.)

## **II. STATEMENT OF JURISDICTION**

The district court had jurisdiction under 28 U.S.C. §§ 1331 and 1338. (Joint Appendix (“JA”) JA48268-93; JA48294-320) On July 12, 2013, Ronald A. Katz Technology Licensing, L.P. (“Katz”) timely appealed from final judgment as to DHL Holdings (USA) Inc., DHL Express (USA) Inc., and Sky Courier (“DHL”), entered June 25, 2013, as well as the orders underlying that final judgment. (JA78596.)

### **III. STATEMENT OF THE ISSUES**

#### **Infringement:**

Did the district court err in granting summary judgment (and in determinations underlying summary judgment, including claim construction):

1. of non-infringement of claim 61 of U.S. Patent No. 5,351,285 relating to a “means for processing...”?
2. of non-infringement of claim 34 of U.S. Patent No. 5,974,120 relating to “DNIS” and “pin-number data based upon limited use”?
3. of non-infringement of claim 98 of U.S. Patent No. 5,684,863 relating to “DNIS”?
4. of non-infringement of claim 19 of U.S. Patent No. 5,815,551 relating to “DNIS”?

#### **Collateral Estoppel:**

Should this Court vacate the district court’s ruling that Katz is collaterally estopped from asserting claim 34 of U.S. Patent No. 5,974,120 if this Court vacates the decision of the United States Patent & Trademark Office (“PTO”) Patent Trial and Appeal Board (“PTAB”) that claim 34 is invalid, as presented in co-pending Appeal No. 13-1139?

#### IV. STATEMENT OF THE CASE

In 2005-2006, Katz filed patent infringement actions in the District of Delaware and the Eastern District of Texas against over 165 defendants, in about 65 defendant groups, grouped into approximately 25 actions by industry and based on Katz's preliminary knowledge of the accused systems. (JA2542; JA1921; *see* JA9170-71.)<sup>1</sup>

In March 2007, the Judicial Panel on Multidistrict Litigation transferred still-pending actions to the Central District of California for coordinated pretrial proceedings (the "MDL"). (JA2544-45; JA3915-16.)

In 2007, Katz filed approximately 28 additional actions, which were also coordinated in the MDL. (JA3362-63; JA3401; JA4837; JA5001; JA5712-14; JA7147; JA8161-62.) The first 25 actions are referred to as "Track B," while the 2007-filed actions are "Track C." (JA9169.) This appeal arises from a Track B case. (*See* JA2544-45.)

On February 21, 2008, the court construed 30 claim terms ("Original Claim Construction Order"). (JA58-114.) Following the Original Claim Construction Order, the district court granted-in-part and denied-in-part DHL's and the Track B defendants' summary judgment motions, including granting (1) DHL's motion for

---

<sup>1</sup> Katz previously asserted patents from the same family against AT&T and Verizon, resulting in two *Markman* rulings, discussed below.

summary judgment as to non-infringement of claim 63 of the ‘120 patent and invalidity under Section 112 of claim 61 of the ‘285 patent (JA243-75) and (2) the Track B defendants’ motions for summary judgment of invalidity under Sections 102 and 103 for claims 35, 41, 53, 61, and 66 of the ‘965 patent; claims 31, 35, 43, 53, 61, and 66 of the ‘965 patent; and claims 57, 63, and 67 of the ‘120 patent and under Section 112 for claims 1, 2, 4, and 83 of the ‘893 patent; claim 11 of the ‘707 patent; claim 13 of the ‘065 patent; claims 21, 33, and 34 of the ‘551 patent; claims 13, 14, 18, 36, 86, 106, 110, 114, and 119 of the ‘360 patent; claims 7, 51, 58, and 86 of the ‘223 patent; and claims 32 and 34 of the ‘120 patent. (*Id.*)

Of the claims found invalid in the district court’s original summary judgment orders, claims 19 and 33 of the ‘551 patent; claims 14 and 36 of the ‘360 patent; claim 98 of the ‘863 patent; claim 13 of the ‘065 patent; claim 61 of the ‘285 patent; claims 1 and 2 of the ‘893 patent; claims 34, 57, and 63 of the ‘120 patent; and claims 31, 35, 61, and 66 of the ‘965 patent were asserted against DHL. *Katz I*, 639 F.3d at 1309 n.4. The summary judgment decisions addressed all of the claims asserted against DHL, and the district court entered final judgment in DHL’s favor at that time. (JA37-38.)

Katz appealed the Original Claim Construction Order and the summary judgment orders on June 22, 2009. (JA64088-90.)

On February 18, 2011, this Court ruled in Katz’s favor on various claims

asserted against DHL, vacating the district court's findings of:

- Indefiniteness of claim 98 of the '863 patent, claim 19 of the '551 patent, and claim 61 of the '285 patent; and
- Lack of written description for claim 34 of the '120 patent. *In re Katz*, 639 F.3d at 1328 (“*Katz I*”).

This court also remanded the issue of claim construction for the term “DNIS.” *Katz I*, 639 F.3d at 1326.

After this Court's *Katz I* opinion, there were four remaining claims asserted against DHL: claim 98 of the '863 patent, claim 19 of the '551 patent, claim 61 of the '285 patent, and claim 34 of the '120 patent.

On remand, the district court reconstrued the claim term “DNIS”—purporting to use this Court's guidance in *Katz I*. (JA7-8.) The district court then permitted DHL to file another summary judgment motion relating to the four remaining asserted claims. (JA65466-68.) DHL filed its summary judgment motion on June 15, 2012. (JA65956.)

The district court granted-in-part and denied-in-part DHL's motion on June 12, 2013 (“Summary Judgment Order”). (JA1-23.) Specifically, the district court entered summary judgment of:

- Non-infringement of the “means for processing...” limitation of claim 61 of the '285 patent by the accused Brite and Edify IVR Systems;

- Non-infringement of the “DNIS” and “pin-number data based upon limited use” limitations of claim 34 of the ‘120 patent by the accused Brite and Genesys IVR Systems;
- Non-infringement of the “DNIS” limitation of claim 98 of the ‘863 patent by the accused Brite IVR System; and
- Non-infringement of the “DNIS” limitation of claim 19 of the ‘551 patent by the accused Brite and Edify IVR Systems. (JA7-23.)

The district court also held that Katz is collaterally estopped from asserting that claim 34 of the ‘120 patent is valid, in view of the PTAB’s decision affirming the rejection of claim 34 in reexamination. (JA3-4.)

Katz now appeals the district court’s (1) June 25, 2013 final judgment in the case following summary judgment, (2) June 12, 2013 Summary Judgment Order, (3) April 26, 2012 supplemental claim construction order (“Supplemental Claim Construction Order”), (4) September 7, 2011 Case Management Order, and (5) December 18, 2012 Order Granting in Part and Denying in Part Katz’s Motion to Strike Portions of DHL’s Motion for Summary Judgment.



## V. STATEMENT OF FACTS

### A. Patented Technology Background

The patents-in-suit disclose and claim various methods and systems enabling telephone callers to exchange information with computer systems through a telephone network. An exemplary Katz patent figure below illustrates a typical arrangement of callers' remote terminals (*e.g.*, telephones), communication facility (telephone network), and interface system (optionally including live operators):

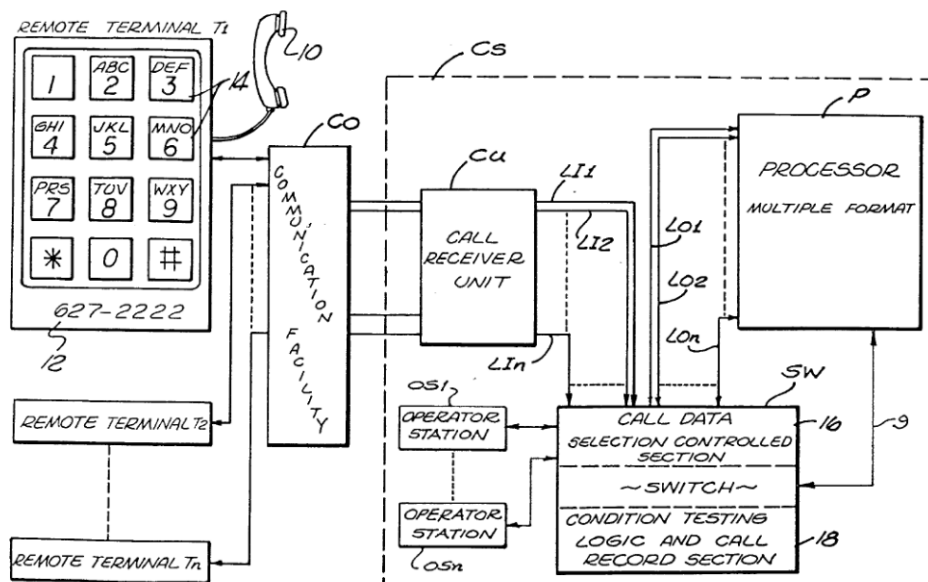


FIG. 1

(JA412 ('285 patent, Figure 1).) The inventions, typically focusing on the interface systems' activities and structures, achieve valuable security, control, and efficiency.

The patents-in-suit ultimately claim priority to a July 1985 application. Four different specifications support the claims at issue on appeal:

*Confidential Material Redacted*

The “Statistical Interface” specification (‘863, ‘551, ‘762, ‘360, ‘309, ‘065, ‘547, and ‘707 patents) teaches inventions enabling secure and efficient transactions and data-processing based on interactions with callers.

The “Dual Call Mode” (or “Call Selectivity”) specification (‘120 and ‘223 patents) teaches the use of different “call modes,” such as toll-free and area-code calls, to accommodate and control interactive “formats” (essentially, call process flow applications).

The “Conditional Interface Plus” specification (‘285 and ‘893 patents) teaches the use of “call data signals” (e.g., called-number and calling-number signals) to control access to formats.

The ‘965 patent teaches inventive uses of caller-entered signals.

In the present appeal, the ‘285, ‘863, ‘551, and ‘120 patents are directly at issue, while the other patents may be relevant to the extent that they impact claim construction.

**B. DHL’s Accused Systems**

**1. Brite IVR System**

DHL’s Brite IVR System provided automated voice response and call center services to callers. (JA70853-54 at 130:21-131:23; JA70987; JA75618 ¶ 9; JA75627 ¶ 55; JA75644 ¶ 120; JA75661 ¶ 192.) Callers accessed the DHL Customer Service System, utilizing the Brite IVR System, [REDACTED]

*Confidential Material Redacted*

[REDACTED]

[REDACTED] (JA70849-50 at 115:15-116:16;  
JA70884; JA70886; JA70888-918; JA70922-31; JA70936-37 at 34:7-35:8;  
JA75618 ¶ 8; JA75626-27 ¶ 54; JA75644 ¶ 119; JA75661 ¶ 191.)

Calls to DHL's Brite IVR System were received [REDACTED]  
[REDACTED] located in  
one of DHL's call centers. (JA70920; JA70987; JA71052-66; JA71068-73;  
JA70995-96 at 33:4-34:11; JA71026-32 at 71:19-77:8; JA71172-227; JA71767-90;  
JA75619 ¶ 13; JA75627 ¶ 57; JA75632-33 ¶ 77; JA75645 ¶ 124; JA75661-62 ¶  
195; JA75664 ¶ 212; JA70853-54 at 130:21-131:23; JA70920; JA70987; JA71052-  
66; JA71068-73; JA70995-96; JA71026-71032; JA71171-227; JA71767-90.) The

[REDACTED]

[REDACTED]

[REDACTED] (JA70981-95;  
JA71286-87 at 26:12-27:15; JA70939-40 at 43:20-44:1; JA70992 at 27:6-19;  
JA70993 at 31:17-19; JA70995-96 at 33:19-34:2; JA71005-06 at 50:10-51:1;  
JA71302; JA71523; JA75619-20 ¶ 14; JA75633 ¶ 78; JA75634 ¶ 82; JA75645 ¶  
125; JA75664 ¶ 213; JA75665 ¶ 217.) [REDACTED]  
[REDACTED]  
[REDACTED]. (JA75617-18 ¶ 7; JA75633

*Confidential Material Redacted*

¶ 79; JA75664-65 ¶¶ 213-14; JA71305; JA71302; JA70891-95; JA70939-40 at 43:20-44:1; JA709703 at 122:6-11; JA70992-93 at 27:6-19, 31:17-19; JA71523; JA71049; JA71413; JA71416; JA71068-73; JA70995-96 at 33:19-34:2; JA71005-06 at 50:10-51:1; JA71286-87 at 26:12-27:15.)

Upon receiving the DNIS number, DHL's [REDACTED]

[REDACTED]  
[REDACTED]. (JA70922-31; JA70934-35 at 24:11-25:24; JA70939-40 at 43:20-44:1; JA70942-43 at 54:17-55:11; JA70955-56 at 99:16-100:10; JA70957-59 at 106:21-108:3; JA70970-75 at 119:15-124:3; JA70976-78 at 125:23-127:20; JA70981 at 139:20-24; JA70845-46 at 78:24-79:25; JA70847-48 at 93:24-94:8; JA70864 at 164:7-18; JA71286-87 at 26:12-27:15; JA71523; JA71480-94; JA71305; JA75619-20 ¶¶ 14-15; JA75629 ¶ 65; JA75633-34 ¶ 81; JA75636 ¶ 87; JA75637-40 ¶¶ 91, 94, 97, 100-103; JA 75648 ¶¶ 132, 133; JA75651 ¶ 145; JA75658-60 ¶¶ 177-178, 181, 184-188; JA75662 ¶ 196; JA75665-66 ¶ 216; JA75669 ¶ 233; JA75670 ¶ 237; JA75671-72 ¶¶ 240-244; JA71407; JA71409; JA71413; JA71416; JA71302; JA71286-87; JA70891-95; JA70939-40; JA70992-93; JA71523; JA71397-98.) The particular number a caller dialed is associated with a [REDACTED]  
[REDACTED] (JA71075-81; JA71083-98; JA70889-918; JA70922-31; JA70970-75 at 119:15-124:3; JA75619-20; JA75629-30; JA75633-34; JA75636-40; JA75648;

*Confidential Material Redacted*

JA75651-52; JA75658-60; JA75665-66; JA75669-72; JA71302; JA70922-31;  
JA70939-40 at 43:20-44:1; JA71286-87 at 26:12-27:15; JA71523; JA71305;  
JA71075-81; JA71083-98; JA70889-918; JA71901-17; JA70873-75; JA71327-28;  
JA72213-38; JA72240-71.) DHL tracks the relationship between the called  
numbers, [REDACTED]. For example:

[REDACTED]

(JA70922-31; *see also* JA68214 at 43:20-44:1 ([REDACTED]

[REDACTED].)

In the Brite IVR System, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] More specifically, each

[REDACTED]

[REDACTED]

[REDACTED]—in other words, a

*Confidential Material Redacted*

“format” in the terminology of the Katz patents—

. (JA71075-81; JA71083-98; JA70889-918; JA70922-31; JA70934-35 at 24:11-25:24; JA70942-43 at 54:17-55:11; JA70955-56 at 99:16-100:10; JA70957-59 at 106:21-108:3; JA70970-75 at 119:15-124:3; JA70976-78 at 125:23-127:20; JA71101; JA710803-50; JA75620 ¶ 15; JA71319-23; JA75628-29 ¶¶ 60-64; JA75635-40 ¶¶ 83, 88-103; JA75641 ¶ 107; JA75646-48 ¶¶ 127-130, 133; JA75650-51 ¶¶ 140-143; JA75657-61 ¶¶ 171-190; JA75662 ¶ 196; JA75666-67 ¶ 218; JA75669-72 ¶¶ 232-248; JA70845-46 at 78:24-79:25; JA70847-48 at 93:24-94:8; JA70864 at 164:7-18; JA72222-23; JA68081 at 52:8-53:8; JA58.)

By way of example, when callers called the DHL dial-in number

. (JA75622 ¶¶ 27-30; JA71143-47; JA71151-55; JA75628-29 ¶ 61; JA70889-91; JA75634-35 ¶¶ 82-83; JA70922; JA75639-40 ¶ 101; JA75646 ¶ 128; JA75650 ¶ 141; JA75660 ¶ 185; JA75666-67 ¶¶ 217-218; JA75671 ¶ 241; JA70888-918; JA70922.) The

—thus determining which one of several distinct formats should be used for a caller. (JA75622 ¶¶ 27-30; JA71143-47; JA71151; JA71151-55; JA75628-29 ¶ 61;

*Confidential Material Redacted*

JA70889-91; JA75634-35 ¶¶ 82-83; JA70922; JA75639-40 ¶ 101; JA75646 ¶ 128; JA75650 ¶ 141; JA75660 ¶ 185; JA75666-67 ¶¶ 217-218; JA75671 ¶ 241; JA70888-918; JA70922.)

Callers used the Brite IVR System to perform tasks like [REDACTED] [REDACTED] (JA70920; JA70987; JA71052-66; JA71068-73; JA70995-96 at 33:4-34:11; JA71026-32 at 71:19-77:8; JA71172-27; JA71767-90; JA75643 ¶ 115; JA70920; JA70987; JA71052-66; JA71068-73; JA70995-96; JA71026-32; JA71171-227; JA71767-90.) For [REDACTED] the Brite IVR System determined whether calls may proceed based on the [REDACTED] [REDACTED] (JA70995-96 at 33:4-34:11; JA75643-44 ¶ 116; 71026-32 at 71:19-77:8; JA71171-27; 71767-90.) Callers were allowed to [REDACTED] [REDACTED]. After reaching the maximum number of packages that could be [REDACTED] [REDACTED]. (JA71026-32 at 71:19-77:8; JA71767-90; JA75643-44 ¶¶ 116-117; 71026-32 at 71:19-77:8; JA79-80.) If a caller did not have a [REDACTED] [REDACTED] functions of the accused systems in order to [REDACTED].

Callers spoke to agents to perform [REDACTED]

[REDACTED] For example, a caller could work with an

*Confidential Material Redacted*

agent to [REDACTED] (JA71038 at 113:18-20; JA71039-41 at 115:5-117:18; JA71042 at 118:9-11, 12-25; JA71043-45 at 120:22-122:3; JA70856-58 at 142:21-144:2; JA70864 at 164:7-18; JA75621-25; JA75620-21 ¶¶ 18-19; JA71052-66; JA70995-96 at 33:19-34:2; JA70856-58; 75623 ¶¶ 34-35; JA65949; JA70934-35 at 24:11-25:24; JA70982 at 145:1-20.) Each agent had a [REDACTED] (JA70856-57 at 142:21-143:24; JA75618 ¶ 10; JA70856-57; JA75625 ¶ 47; JA71043-45 at 120:22-122:3; JA71237; JA75644 ¶ 121; 70856-57.) [REDACTED] [REDACTED] [REDACTED]. (JA70856-57 at 142:21-143:24; JA75623-24; JA75618 ¶ 10; JA70856-57; JA75619 ¶ 12; JA70987; JA70990 at 25:5-21; JA70995-96 at 33:19-34:2; JA71049; JA71052; JA71068-73; JA75621 ¶ 20; JA71039 at 115:5-117:18; JA71042 at 118:9-11; JA71075-81; JA75625 ¶ 47; JA71043-45 at 120:22-122:3; JA71237; JA75644 ¶ 121; JA70856-57.) When working with callers, the agents [REDACTED] [REDACTED] [REDACTED] (JA71075-81; JA71039-41 at 115:5-117:18; JA70142 at 118:9-11, 12-25; JA75623-24; JA75621 ¶ 21; JA71075-81; JA70987; JA70934-35 at 24:11-25:24; JA75623-24 ¶¶ 34-47; JA71075-81; JA71171-227; JA71229-31; JA71043; JA70987; JA70864 at 164:7-18; JA70934-



*Confidential Material Redacted*

35; JA71075-81; JA71237; JA71043-45 at 120:22-122:3; JA71045-47; JA71241-80; JA71282-83; 71039-72; JA70856-58; JA65949; JA70856-58 at 142:21-144:2; JA700982 at 145:1-20; JA65949.)

More specifically, when an agent [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]. (JA75623-24 ¶¶ 37-44; JA71075-81; JA71237; JA71045-47; JA71241-80; JA71282-83; JA71039-42; JA70856-58; JA75623-24; JA71241-80; JA71282-83; JA71039-41 at 115:5-117:18; JA71075-81; JA71171-227; JA71229-31; JA71042 at 118:9-11; JA71075-81; JA70987; JA70934-35 at 24:11-25:24; JA70864 at 164:7-18; JA71075-81- JA70987; JA71237; JA71043-45 at 120:22-122:23.) Agents could give callers

[REDACTED] (JA71075-81; JA71241-80; JA71042 at 118:9-11; JA71282-83; JA75624-25; JA75624-25 ¶ 45; JA71075-81; JA71241-80; JA71042; JA71282; JA70982 at 145:1-20.) For [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (JA71075-81; JA71241-80; JA71282-83; JA75624 ¶ 42; JA71075-81; JA71241-80; JA71042 at 118:12-25.)

*Confidential Material Redacted*

**2. Edify IVR System**

The Edify IVR System functioned in much the same way as the Brite IVR System. Like in the Brite IVR System, in the Edify IVR system, DNIS was received from the [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (JA71149 at 31:4-7, 31:19-22; JA71162; JA72284; JA75667-68 ¶¶ 221-226; JA71149 at 31:19-22; JA71151 at 33:2-5; JA71154-55 at 36:21-37:2, 20-24; JA71162 at 73:3-24; JA71165 at 77:4-12; JA72284; JA71649; JA72213-38.) DHL even admitted that the accused Edify IVR System [REDACTED] (JA70626.)

There is no dispute that the DNIS received [REDACTED]  
[REDACTED], but the district court confused the issues and improperly granted summary judgment of non-infringement.

Callers to the Edify IVR System could choose an option to speak with an agent. [REDACTED]

[REDACTED] (JA71143-47 at 25:20-29:25; JA71151 at 33:12-25; JA71151-54 at 33:25-36:21; JA71154 at 36:21-37:19; JA75622 ¶¶ 27, 32; JA71143-58; JA71151; JA71160-61 at 70:25-71:6; JA71169 at 122:3-19; JA67858; JA67858 at 47:2-5, 47:21-49:16.) Each agent had

[REDACTED]

*Confidential Material Redacted*

[REDACTED]

[REDACTED] (JA71153-54 at 35:8-36:21; JA75625; JA75622 ¶ 28; JA75625-26 ¶¶ 48-51; JA67853-55; JA67862-64; JA67877; JA71636; JA71638-49.)

Through the agent terminals, [REDACTED]

[REDACTED]. (JA71153-54 at 35:8-36:18; JA75625-26; JA71146-55; JA71160-61 at 70:25-71:6; JA71636; JA71638-49 JA75622 ¶ 28; JA71153-54; JA75625; JA75625 ¶¶ 49-50; JA67854-55; JA67864.) Agents

[REDACTED]

[REDACTED]

[REDACTED] (JA71083-98; JA71160-61 at 70:25-71:6; JA75625-26; JA75625 ¶ 50; JA67864; JA75625-26 ¶ 52; JA67853-55; JA67862-64; JA71636; JA71638-49.) [REDACTED]

[REDACTED] (JA71169 at 122:3-19; JA75625-26; JA75625-26 ¶¶ 51-52, JA67877; JA67853-55; JA67862-64; JA71636; JA71638-49; *see also* JA71146-48 at 28:25-29:3, 29:8-25, 30:2-4; JA71151-55 at 33:12-15, 36:21-37:19; JA71636; JA71638-49; JA75625-26 ¶ 52; JA67853-55; JA67862-64; JA71636; JA71638-49.)

### **3. Genesys IVR System**

The Genesys IVR System was DHL's [REDACTED]

*Confidential Material Redacted*

[REDACTED] (JA70842; JA75630 ¶ 66; JA70842; JA70873-74; JA67962-63; JA67967; JA75631 ¶ 73; JA70842.) After the Genesys IVR system was implemented [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (JA71326-27 at 31:14-32:13; JA71336-38 at 48:8-50:10; JA71672-90; JA75630 ¶ 68; JA67958; JA67962-63; JA71673; JA71692-705; JA75631-32 ¶ 74; JA67958; JA67962-63; JA71673; JA71852-99; JA75640 ¶ 104; JA71344; JA70873-75; JA67958; JA70971; JA71326-27 at 31:13-32:13.)

The Genesys IVR system had a [REDACTED]

[REDACTED]

[REDACTED]

(JA75630 ¶ 68; JA67958; JA67962-63; JA71673; JA71692-705; JA75635 ¶¶ 84-86; JA71344; JA71692-705; JA71792-801; JA67858; JA47962-63; JA71673; JA75640 ¶¶ 105-106; JA71344; JA67958; JA67962; JA68214; JA68222; JA68239; JA68091-91; JA68098-99; JA71672-90; JA71722-65; JA70920-31; JA71919-26; JA71934-35; JA71961-66; JA71968-73; JA71943-44; JA72028-42; JA72044-97; JA71792-801; JA71307-08; JA72099-103; JA70888-913; JA72105-62; JA71049-50.) [REDACTED]

*Confidential Material Redacted*

[REDACTED]. (JA71344; JA75631 ¶  
69; JA67958; JA67962-63; JA71673; JA75640 ¶¶ 104-106; JA70873-75;  
JA70971; JA71344; JA67958; JA67962; JA68214; JA68222; JA68239; JA68091-  
91; JA68098-99; JA71672-90; JA71722-65; JA70920-31; JA71919-26; JA71934-  
35; JA71961-66; JA71968-73; JA71943-44; JA72028-42; JA72044-97; JA71792-  
801; JA71307-08; JA72099-103; JA70888-913; JA72105-62; JA71049-50.) [REDACTED]

[REDACTED]. (JA75640 ¶¶ 104-105; JA71344; JA70873-75; JA67958; JA70971.)

For the claims at issue in this appeal, Katz's infringement contentions  
pertaining to the Genesys IVR System are not directed at only the [REDACTED]

[REDACTED]. Instead, the contentions are directed to a combination of the [REDACTED]

[REDACTED] (JA10-11;  
JA75631-32 ¶¶ 73-74; JA70842 at 48:10-18; JA67958; JA67962-63; JA71673;  
JA71852-99; JA71326-27 at 31:14-32:13; JA71336-38 at 48:2-50:4.)

**C. Infringement Issues on Appeal**

**1. Claim 61 of the '285 Patent**

Katz accuses DHL's Brite and Edify IVR Systems of infringing claim  
'285:61. Claim 61, which depends from claim 54, recites:

54. An interface control system for use with, (1) a  
telephonic communication facility including remote

terminals for individual callers, wherein said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means for providing data, and (2) a multiple port, multiple format processor for concurrently processing data from a substantial number of callers in any of a plurality of formats, said telephonic communication facility automatically provides call data signals, as to indicate called numbers to select a particular format from said plurality of formats, and (3) a plurality of live operator attended terminals with prompting capability for a plurality of formats, said interface control system comprising:

interface means for providing an introductory automated voice message relating to a specific format from said plurality of formats;

means for forwarding coupled to said interface means for forwarding a call from any one of said remote terminals to one of said plurality of live operator attended terminals;

means for processing coupled to said forwarding means for processing caller information data entered by an operator at said live operator attended terminal;

means for storing coupled to said processing means for storing certain select data from said caller information data entered by said operator; and

means for reconnecting said call to said interface means to receive certain processed data via an automated voice message.

61. An interface control system according to claim 54, wherein a plurality of called numbers are associated with said select processing format. (JA429.)

The only issue on appeal is whether there is a triable issue of fact that the accused systems practiced the “means for processing...” limitation. In opposing

*Confidential Material Redacted*

DHL's summary judgment motion regarding the limitation, Katz and its expert, Dr. Kelly, repeating the infringement analysis in his expert report, identified evidence showing that the accused systems infringed in two different ways:

(1) DHL's operators [REDACTED]

[REDACTED]  
[REDACTED] ( JA75621 ¶¶ 20-21; JA71075-81; JA71039-41 at 115:5-117:18; JA71042 at 118:9-11; JA70987; JA70934-35 at 24:11-25:24; JA70864 at 164:7-18; JA75623 ¶¶ 36, 39; JA71171-227; JA71229-31; JA71043-45 at 120:22-122:3; JA71045-47; JA71237; JA75625 ¶ 48; JA71075-81; JA67854-55; JA71143-47 at 25:20-29:25; JA71151 at 33:12-25; JA71151-54 at 33:25-36:21; JA71153-54 at 35:8-36:18.) For the accused Brite IVR System, [REDACTED]

[REDACTED]  
(JA75623-24 ¶¶ 36-47; JA71171-227; JA71075-81; JA71229-31; JA71042 at 118:9-11, 12-25; JA71043-45 at 120:22-122:3; JA70856-58 at 142:21-144:2; JA70864 at 164:7-18; JA70987; JA70934-35 at 24:11-25:24; JA71237; JA71045-47; JA71241-80; JA71282-83; JA71039-45; JA70856-58; JA71039-41 at 115:5-117:18.) The structure meeting the "means for processing" limitation in that system was [REDACTED] (JA75621 ¶ 21; JA71075-81; JA70987; JA70934-35 at 24:11-25:24; JA70864; JA75623 ¶ 37; JA70987; JA71039-41 at 115:5-117:18.) For the accused Edify IVR System, agents also

*Confidential Material Redacted*

[REDACTED]

[REDACTED] (JA75625 ¶¶ 48-49; JA71151-54 at 33:25-36:21; JA71075-81; JA67854-55.) The structure satisfying the “means for processing” limitation in the Edify IVR System [REDACTED] (JA75625-26 ¶ 52; JA67853-55; JA67862-64; JA71636; JA71638-49.)

(2) Agents entered [REDACTED]

[REDACTED] respectively.  
(JA75624-26 ¶¶ 44-52; JA71075-81; JA71042; JA71241-80; JA71282; JA70982; JA71043-45; JA71237; JA67854-55; JA67864; JA67877; JA67853-55; JA67862-64; JA71636; JA71638-49.) The structures meeting the “means for processing...” limitation are the same as discussed immediately above.

For the first basis for infringement (“1,” above), the district court disregarded Katz’s infringement evidence because it determined as a matter of claim construction that the meaning of “processing...” excludes processing information in connection with a storage operation. For the second basis for infringement (“2,” above), the district court ignored the infringement evidence without making a determination on the merits based on its mistaken belief that Katz and its expert had never advanced the infringement theory prior to the opposition briefing. (JA8-9.)



## **2. Claim 34 of the '120 Patent**

Katz accuses DHL's Brite and Genesys IVR Systems of infringing claim

'120:34. Claim 34, which depends from claim 28, recites:

28. A telephone call processing system for receiving calls through a telephonic communication facility from a multitude of terminals in a toll free call mode for processing data in accordance with an operating process format and involving digital signals including called number identification signals (DNIS) automatically provided by said telephonic communication facility, said system comprising:

first response unit means for receiving calls in said toll free call mode wherein said called number identification signals (DNIS) indicative of at least one of a plurality of distinct called numbers identifies said operating process format;

voice generator means for prompting callers to enter data in response to voice prompts wherein said data entered by said callers is used to update data for said callers in a database relating to said callers;

qualification means for qualifying at least said calls utilizing said one of said plurality of distinct called numbers in said toll free call mode received by said first response unit to provide qualified calls based upon a test of caller entered identification data including caller pin-number data based upon limited use;

second response unit means for receiving calls in said toll free call mode wherein called number identification signals (DNIS) indicative of one other of said plurality of distinct called numbers identifies said operating process format;

means for concurrently processing calls received by said first response unit means and said calls received by said

second response unit for concurrent processing of data in accordance with common operations of said operating process format.

34. A telephone call processing system according to claim 28, wherein at least select digits of caller telephone numbers are automatically provided by digital signals from the telephonic communication facility. (JA590.)

The only two infringement issues on appeal for claim ‘120:34 are whether Katz presented evidence sufficient to warrant denial of summary judgment of non-infringement regarding (1) the “DNIS” limitation and (2) the “pin-number data based upon limited use” limitation.

For the “DNIS” limitation, the basis of the district court’s finding of non-infringement is its flawed belief that the DNIS signals (and the translated VDN signals) received by the accused systems do not satisfy its incorrect revised construction of the term, namely: “DNIS refers to signals or data that uniquely identify the number called. DNIS is not limited to the full ten-digit number.” (JA11-12 (emphasis added).)

For the “pin-number data based upon limited use,” while the district court agreed that tracking numbers entered by callers could be “pin numbers,” the court erroneously interpreted the claim language to require some special “connection” between the pin-numbers and a limit on use of the accused systems. (JA14-15.)

### **3. Claim 98 of the ‘863 Patent**

Katz accuses DHL’s Brite IVR System of infringing claim ‘863:98. Claim

98, which depends from claim 96, recites:

96. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing data, said analysis control system comprising:

an interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication, and including means to receive answer data signals provided by said individual callers from said remote terminals wherein said communication facility automatically provides called number identification data signals indicating a called number (DNIS) dialed by an individual caller and said called number is one of a plurality of called numbers;

voice generator structure coupled through said interface structure for actuating said remote terminals as to provide vocal operating instructions to said individual callers;

record structure including memory and control means for storing answer data signals and for receiving identification data signals for specific of said individual callers, said record structure further including means for receiving additional identification data signals on-line for said specific of said individual callers and for storing said additional identification data signals in said record structure for subsequent identification of said individual callers;

means for processing at least certain of said answer data signals relating to select ones of said individual callers;  
and

qualification structure for verifying said identification data signals for specific of said individual callers against a file of stored identification data.

98. An analysis control system according to claim 96, wherein said identification data signals comprise caller customer number data. (JA486.)

The only issue on appeal for claim ‘863:98 is the same DNIS issue as for claim ‘120:34. (JA16.)

#### **4. Claim 19 of the ‘551 Patent**

Katz accuses DHL’s Brite and Edify IVR Systems of infringing claim ‘551:19. Claim 19, which depends from claims 14 and 18, recites:

14. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of the remote terminals comprises a telephonic capability including voice communication means and digital input means in the form of an array of alphabetic numeric buttons for providing data, the analysis control system comprising:

interface structure coupled to the communication facility to interface the terminals for voice and digital communication and including structure to provide signals representative of data developed by the terminals;

voice generator structure selectively coupled through the interface structure to the terminals for providing vocal operating instructions to individual callers;

record memory connected to the interface structure for updating a file and storing data relating to certain individual callers;

qualification structure to access the record memory to test key number data provided by the individual callers to ensure that the key number data is valid;

*Confidential Material Redacted*

generator structure selectively coupled to the interface structure and the record memory for providing computer generated numbers to the individual callers and storing the computer generated numbers in the record memory; and

analysis structure connected to the record memory for processing at least certain of the data relating to certain individual callers subject to qualification by the qualification structure.

18. A control system according to claim 14, further including means to control processing formats of the analysis structure in accordance with signals automatically provided by the communication facility indicative of one of a plurality of called numbers (DNIS).

19. A control system according to claim 18, wherein the data relating to certain individual callers includes calling number identification data for certain individual callers automatically provided by the communication facility. (JA515.)

The only issue on appeal for claim ‘551:19 is the same DNIS issue as for claims ‘120:34 and ‘863:98. (JA19.) Remarkably, the district court granted summary judgment of non-infringement of claim ‘551:19 by the Edify IVR System based on the DNIS issue despite the fact that DHL did not even seek such a finding for that system. (JA70626-27.) DHL’s only actual contention about the Edify IVR System was that there was no evidence that [REDACTED] [REDACTED]—an argument that the district court rejected. (JA20-21; JA70626-27.)

**D. Collateral Estoppel Issue on Appeal**

Claim 34 of the '120 patent was subject to *ex parte* reexamination in view of certain purported prior art references in merged PTO reexamination proceedings Control Nos. 90/008,229, 90/010,044, & 90/010,130. On September 28, 2012, the PTAB issued a final decision affirming the Examiner's rejection of claim 34. (JA78557.) The district court ruled that Katz is collaterally estopped from asserting claim 34 against DHL based on the PTAB's decision affirming the rejection. (JA3-4.) However, Katz has appealed the PTAB's decision to this Court, in co-pending Appeal No. 13-1139. That appeal is fully briefed and scheduled for oral argument on November 6, 2013.

*Confidential Material Redacted*

**VI. SUMMARY OF THE ARGUMENT**

This court should reverse the order granting summary judgment of non-infringement, reverse the final judgment, vacate the Supplemental Claim Construction order as it relates to “DNIS,” and remand to the district court to proceed to trial.

First, Katz presented evidence sufficient to demonstrate a triable issue of fact as to whether DHL’s Brite and Edify IVR Systems included a “means for processing...” as required by claim ‘285:61. The district court erred by misconstruing the claim language and by ignoring the evidence of infringement based on its misunderstanding of Katz’s expert’s opinion.

Second, the district court erred in granting summary judgment of non-infringement of claims ‘120:34, ‘863:98, and ‘551:19 on the basis that the accused systems do not receive “DNIS.” The district court adopted an incorrect construction of the claim term “DNIS”—a construction that led to the district court failing to weigh evidence sufficient to demonstrate genuine fact issues regarding infringement. Further, for claim ‘551:19, the district court’s summary judgment of non-infringement relating to “DNIS” for the accused Edify IVR System was erroneous in view of DHL’s admission that the system did [REDACTED]

Third, the district court further erred in granting summary judgment of non-infringement of claim ‘120:34 on the basis that the accused Brite and Genesys IVR

Systems did not have “pin-number data based upon limited use.” The court improperly construed the claim to read in limitations not required by the claim language and misunderstood how tracking numbers are used in the accused systems.

The Court should also vacate the district court’s ruling that Katz is collaterally estopped from asserting ‘120 patent claim 34, in the event the Court in co-pending Appeal No. 13-1139 vacates the PTAB’s invalidity ruling regarding claim 34. The sole basis for the district court’s collateral estoppel ruling is the final decision of the PTAB. Accordingly, if that PTAB decision is vacated, the collateral estoppel decision should also be vacated.



## VII. ARGUMENT

### A. Standards of Review

Claim construction is a purely legal issue and is reviewed *de novo* on appeal. *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1455-56 (Fed. Cir. 1998) (en banc). The court must use the words of the claims, the specification, the prosecution history, and relevant extrinsic evidence to ascertain the asserted claims' scope and meaning. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315-17 (Fed. Cir. 2005) (en banc).

Summary judgment is reviewed *de novo*, reapplying the summary judgment standard. *See IGT v. Alliance Gaming Corp.*, 702 F.3d 1338, 1343 (Fed. Cir. 2012) (applying law of regional circuit); *Furnace v. Sullivan*, 705 F.3d 1021, 1026 (9<sup>th</sup> Cir. 2013) (de novo).

Summary judgment is improper if there is a genuine issue of material fact, *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986), with all evidence and factual inferences resolved in the nonmovant's favor, *Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc.*, 145 F.3d 1303, 1307 (Fed. Cir. 1998); *see also Celotex Corp. v. Catrett*, 477 U.S. 317, 322-23 (1986).

### B. The Court Erred in Granting DHL Summary Judgment of Non-Infringement of Claim 61 of the '285 Patent

The district court erred in multiple respects in finding that DHL does not infringe claim '285:61. First, the court adopted an unduly narrow interpretation of

the “means for processing...” limitation and then disregarded evidence on infringement based on that overly narrow interpretation. Under the correct construction, there are genuine issues of fact precluding summary judgment. Second, the court also ignored evidence of infringement—under both the correct and incorrect constructions—based on its misunderstanding of Katz’s expert’s opinion. Each error constitutes independent grounds for reversal.

**1. The district court’s implied construction of the “means for processing...” limitation is without support**

In rejecting Katz’s evidence of infringement, the district court relied on an unduly narrow construction of “processing” as recited in the “means for processing” claim element. The court construed the term “processing” to exclude “storing data” and to also exclude “any ancillary operations associated with storing,” so that the claim excludes the processing involved in “receiving data entered by an operator and preparing it for storage.” (JA8.) The district court’s claim construction is unsupported by the intrinsic evidence.

“The words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history.” *Thorner v. Sony Computer Ent’mt America LLC*, 669 F. 3d 1362, 1365 (Fed. Cir. 2012) (citing *Phillips*, 415 F.3d at 1313). “There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the

patentee disavows the full scope of a claim term either in the specification or during prosecution.” *Thorner*, 669 F.3d at 1365 (citing *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1580 (Fed. Cir. 1996)).

These claim construction principles are particularly important in the context of a means-plus-function claim element like the “means for processing” element. “Under § 112, ¶ 6, a court may not import functional limitations that are not recited in the claim.” *Wegner Mfg., Inc. v. Coating Mach. Sys., Inc.*, 239 F.3d 1225, 1233 (Fed. Cir. 2001); *Generation II Orthotics, Inc. v. Med. Tech., Inc.*, 263 F.3d 1356, 1364-65 (Fed. Cir. 2001) (“[W]e must take great care not to impermissibly limit the function by adopting a function different from that explicitly recited in the claim.”).

Here, the full claim element merely recites “means for processing coupled to said forwarding means for processing caller information data entered by an operator at said live operator attended terminal.” (JA429.) The claim language does not limit the type of “processing” to be performed, much less exclude “ancillary operations associated with storing.” The claim recites processing according to its ordinary meaning in context, which may include any manipulation of data that performs some operation(s) on the data.

In fact, in the same coordinated cases prior to the summary judgment proceedings at issue, the district court specifically addressed the meaning of

“processing” in the context of ‘285 patent claim 61 and reached the correct conclusion: “this Court interprets the ‘processing’ to have its plain meaning in the context of the ‘285 patent.” (JA65949.)<sup>2</sup> The court’s ruling was correct. However, later at the summary judgment stage with DHL, the court erroneously re-construed the same term.

In its summary judgment order, the district court noted that claim 61 recites both a “means for processing” and a “means for storing.” (JA9.) But the fact that the claim recites both “processing” and “storing” structures does not limit the meaning of “processing” to exclude processing operations that may be “ancillary to storage.” On the contrary, the “processing” and “storing” limitations together suggest that processing may well *include* processing in preparation for storage:

means for processing coupled to said forwarding means  
for processing caller information data entered by an  
operator at said live operator attended terminal;

means for storing coupled to said processing means for  
storing certain select data from said caller information  
data entered by said operator. (JA428.)

The storing means is coupled to the processing means in order to store data entered by the operator. The processing structure processes information entered by the operator, and the storing means stores the operator-entered information. The claim language does not support the district court’s construction whereby the

---

<sup>2</sup> The court’s order mistakenly referred to “claim 16” instead of “claim 61.” (*Id.*)

“processing” must be unrelated and unconnected to any storage operation.

The district court also cited the specification, stating that “[t]he ‘285 patent clearly did not intend to refer to storing data **(including any ancillary operation associated with storing)** when it used the term ‘processing.’” (JA8 (emphasis added).) The specification does not support the court’s conclusion. There is no mention of “ancillary” operations at all in the intrinsic record. The specification never re-defines “processing” with a narrow definition that would exclude processing operations relating to or in preparation for storage, nor does the specification clearly disclaim processing of data for storage purposes. *Thorner*, 669 F.3d at 1365.

The district court’s cited specification passages do not constitute any re-definition or disclaimer. (JA8-9 quoting ‘285 at 2:37-38 (“Data is recorded and processing procedures also may be controlled by call data.”) and 8:47-49 (“the call data is registered to be amenable for processing operations”).)) It is not even apparent why the district court believed these passages to be relevant to the claim construction inquiry. Neither passage teaches that the recited “processing” operation cannot include processing relating to a storage function.

Moreover, even if the cited portions suggested some kind of distinction in an exemplary embodiment, there is no basis to limit the claim to such embodiment.

*Confidential Material Redacted*

**2. Genuine issues of fact preclude summary judgment of non-infringement under the proper construction of “means for processing...”**

Under the correct interpretation of the claim language—that “processing” does not exclude processing operations that may relate to storage—the record evidence shows at least a material issue of fact of infringement. Because the court ignored substantial evidence of infringement based on its flawed claim construction, summary judgment of non-infringement should be reversed.

The district court acknowledged that Katz adduced evidence showing that agents [REDACTED]

[REDACTED] (JA8; JA75703-04; JA75620-21 ¶¶ 15-23; JA71075-81; JA71083-98; JA71100-40; JA70922-31; JA70889-918; JA70987; JA71052-66; JA70994 at 32:4-13; JA70995-96 at 33:19-34:2; JA71005-06 at 50:10-51:1; JA70856-58 at 142:21-144:2; JA71024 at 69:2-5; JA71029 at 74:1-9; JA71038 at 113:18-20; JA71039-42 at 115:5-117:18; JA71042 at 118:9-11; JA71043-45 at 120:22-122:3; JA71075-81; JA70934-35 at 24:11-25:24; JA70970-75 at 119:15-124:3; JA70864 at 164:7-18.) DHL does not deny that Katz’s characterizations of the accused systems are factually accurate. There is also no dispute that for the Brite IVR System, [REDACTED]

[REDACTED]. (JA75623 ¶ 37; JA70864; JA70987;

*Confidential Material Redacted*

JA70934-35; *see* Section V.B.1., above.), or that the [REDACTED]

[REDACTED]. (JA75625-26 ¶ 52; JA67853-55; JA67862-64; JA71636; JA71638-49; JA71151-54 at 33:25-36:21; JA71146-47 at 28:25-29:3, 29:8-25; JA71148 at 30:2-4; JA71153 at 35:19-36:20; JA71154-55 at 36:21-37:19; JA71160-61 at 70:18-71:12; *see* Section V.B.1., above.) In each system, [REDACTED]. (JA75623 ¶ 38; JA771075-81; JA70987; JA75625-26 ¶¶ 48, 52; JA67853-55; JA67862-64; JA71636; JA71638-49; JA71151-54 at 33:25-36:21; JA71146-47 at 28:25-29:3, 29:8-25; JA71148 at 30:2-4; JA71153 at 35:19-36:20; JA71154-55 at 36:21-37:19; JA71160-61 at 70:18-71:12.) The evidence, therefore, establishes that the processors in both systems satisfy the “means for processing...for processing caller information data entered by an operator at said live operator attended terminal” limitation under the proper, plain meaning interpretation of the term—a construction that does not exclude processing of data prior to storage. As such, a reasonable juror could find infringement under the correct construction, and summary judgment of non-infringement should be reversed.

**3. The district court improperly ignored evidence showing a genuine issue of triable fact under both the incorrect and correct constructions of “means for processing...”**

The district court performed no analysis to determine whether the accused Brite IVR and Edify IVR systems infringed the “means for processing...”

*Confidential Material Redacted*

limitation of claim ‘285:61 when customer service representatives looked up caller information based on the caller’s phone number, a tracking number, and by requesting confirmation numbers—part of Katz’s infringement theory for the claim. (JA7-9.) Instead, the district court wrongly adopted DHL’s argument that Katz’s expert, Dr. Kelly, had not timely offered an opinion of infringement for the claim relating to this theory. (JA9.) Dr. Kelly, however, did timely offer an infringement opinion supporting the theory.

On August 29, 2008, Dr. Kelly submitted a declaration in support of Katz’s opposition to DHL’s original summary judgment motion. In that declaration, Dr. Kelly offered the exact same infringement opinion as he did in support of Katz’s 2012 summary judgment briefing—nearly verbatim, in fact—including his opinion that infringing processing occurred [REDACTED]

[REDACTED] (*Compare* JA75623-27 ¶¶ 34-53 with JA75646-51 ¶¶ 128-144; and JA61343-44 ¶¶ 19-21 with JA75636-37 ¶¶ 87-89; and JA61345 ¶¶ 27-28 with JA76638 ¶¶ 95-96.) DHL did not challenge the identical opinions set forth in the August 29, 2008 Dr. Kelly declaration.

The accused “means for processing” identified in both of Dr. Kelly’s declarations were the same as he identified in his expert report in May 2008: [REDACTED]

[REDACTED] (*Compare* JA75623 ¶ 37



*with* JA75625-26 ¶ 52.) Virtually all of the evidentiary support cited by Dr. Kelly in his summary judgment declarations was also included in his 2008 expert report—3 months before Katz’s opposition to DHL’s first motion for summary judgment and almost 4 years before DHL filed its second motion for summary judgment. (*Compare* JA75623-27 ¶¶ 34-53 *with* JA25973-74; JA25981.)

Accordingly, this additional basis for the district court’s determination of non-infringement of the “means for processing...” limitation of claim ‘285:61 is erroneous. Dr. Kelly’s declarations should have been considered. Because this evidence creates a triable issue of fact under both the court’s construction of “means for processing...” and the correct construction that does not require that processing have nothing to do with storing, summary judgment of non-infringement is improper. For this reason alone, the summary judgment of non-infringement of the limitation should be reversed, as should the district court’s striking of the related portion of Dr. Kelly’s infringement opinion.

**C. The Court Erred in Granting DHL Summary Judgment of Non-Infringement of Claim 34 of the ‘120 Patent**

Both grounds for the district court’s summary judgment of non-infringement of claim ‘120:34 are flawed. For “DNIS,” the court applied an incorrect construction of the term that contravenes the intrinsic and extrinsic record. The court then compounded its error by ignoring evidence that demonstrated a triable issue of fact—even under its own incorrect construction. In attempting to justify

ignoring the evidence of infringement, the district court adopted an interpretation of the asserted system claims that defies long-standing law.<sup>3</sup> For “pin-number data based upon limited use,” the district court created a new, but incorrect, construction of “based upon limited use” and ignored evidence that tracking numbers entered by callers directly impact a caller’s access to tracking information.

### **1. “DNIS”**

The district court’s findings on non-infringement are flawed on a number of levels—each of which constitutes reversible error. Despite re-construing “DNIS” on remand as directed by this Court, the district court adopted a narrow interpretation of the term that lacks any intrinsic or extrinsic support. Then, in applying that construction in the Summary Judgment Order, the district court narrowed the construction even further. Under the correct construction, however, there are genuine issues of fact. Finally, unwilling to acknowledge evidence of infringement even under its own flawed reconstruction of “DNIS,” the district court effectively created a new rule of law that allowed it to selectively weigh infringement evidence on summary judgment.

---

<sup>3</sup> The district court’s errors with respect to DNIS bled over to other claims, resulting in the erroneous findings of non-infringement for claims ‘863:98 and ‘551:19, discussed further, below.

**a. The district court’s claim construction of “DNIS” is inconsistent with the intrinsic and extrinsic record**

On remand, with instructions to re-construe “DNIS,” the district court committed error, again. The court revised its previous construction of “DNIS” to:

DNIS refers to signals or data that uniquely identify the number called. DNIS is not limited to the full ten-digit number. (JA8.)

The district court’s reconstruction of “DNIS” is wrong for two reasons.

First, the court added the word “uniquely” to the construction absent any support in the intrinsic evidence—reading in a narrowing limitation without justification.

Second, the court compounded its error by interpreting its flawed re-construction even more narrowly.

The word “uniquely” does not appear anywhere in the intrinsic record. The claim language merely recites “called number identification signals (DNIS),” or recites that DNIS signals or data “identify” the called number, or the like, with no recited limitation that DNIS must “uniquely” identify the called number. *Thorner*, 669 F.3d at 1365. Likewise, the patent specifications, in describing exemplary embodiments, demonstrate that DNIS is used in the patents consistent with its common usage in the art. (*See, e.g.*, JA473 at 6:36-40 (“the automatic call distributor AC1 associates the called number ((213) 627-3333, rendered available using standard telephone DNIS techniques)”) (emphasis added).) The specifications do not set clearly disclaim or re-define DNIS to limit it to signals

that “uniquely” identify a called number or to require a one-to-one relationship between a called number and a DNIS signal.

Extrinsic evidence shows how DNIS was used in the art at the time the patent applications were filed. The extrinsic evidence illustrates that DNIS identifies or represents the called number. For example:

- “The voice system will identify the call according to DNIS codes which are associated with each of the many 800 service numbers that enter the center.” (*VCT Quarterly Newsletter*, Winter 1987, at 4) (JA65742 (emphasis added));
- “DNIS...Originally, the last four digits arriving at the ACD system represented the last four digits dialed (or a translation) by the caller.” (Waite, *The Inbound Telephone Call Center* at 224) (1990) (JA65735-37 (emphasis added).)

In fact, the only time the term “uniquely” has ever previously come up in the DNIS discussion in the Katz cases is in this Court’s dicta in its opinion in *Katz I*. *In re Katz*, 639 F.3d at 1326 (noting that the district court’s construction was unclear as to whether it “requires that the accused system use the full ten-digit called telephone number or merely some other representation that uniquely identifies the called number.”). This Court made no mention of what it meant by “uniquely,” and this Court’s usage of “uniquely” was not intended to be a claim

construction. In fact, this Court noted that it would not construe the DNIS claims at the time of the *Katz I* opinion. *Id.* at 1325-26 (“Because the parties have addressed this issue only fleetingly in their briefs, we vacate the court’s summary judgment order as to these claims and remand for the district court to resolve this issue of claim construction.”).

The district court’s inclusion of “uniquely” would not necessarily have been error if, for instance, the district court had simply been trying to convey the notion that a DNIS signal identifies a called number, consistent with the plain claim language and the specifications. However, the Summary Judgment Order makes clear that the district court’s interpretation of “uniquely” is much narrower. The district court erroneously required that there be a one-to-one relationship between a called number and DNIS to meet the “uniquely” portion of the construction:

Thus, a **one to one correspondence** between the called number and any item accused of satisfying the DNIS limitation is still required for literal infringement. (JA12 (emphasis added).)

But, just as “uniquely” finds no support in the intrinsic or extrinsic record, a requirement of a “one to one correspondence” between DNIS and a called number certainly has no support.

Accordingly, the district court’s inclusion of the word “uniquely” in the construction of DNIS, and its later interpretation of “uniquely” as requiring a one-to-one relationship, is not supported by any intrinsic or extrinsic evidence and

*Confidential Material Redacted*

should be vacated. “DNIS” should instead be construed as “signals or data that identify the number called. DNIS is not limited to the full ten-digit number.”<sup>4</sup> And as discussed in greater detail in Section VII.C.1.b., below, because of the flawed construction, the court improperly discounted the evidence showing that DHL’s system occasionally had [REDACTED]

[REDACTED] (JA75632-36 ¶¶ 75-87; JA70920-31; JA71052-66; JA71068-73; JA70995-96; JA71026-32; JA71171-227; JA71767-90; JA71302; JA70889-95; JA71286-87; JA70939-40; JA70992-93; JA71523; JA71305; JA71673; JA71344; JA71692-705; JA71792-801; JA71326-27.) Because summary judgment of non-infringement of the DNIS limitation of claim 34 of the ‘120 patent was predicated on an incorrect construction, the judgment should be reversed.

---

<sup>4</sup> Katz’s proposed construction of “DNIS” during the supplemental claim construction process is also consistent with the record: “signals [or data] that identify the number called [where he signals or data may be used in identifying a called number without use of the full ten-digit called].” (JA65686-94.)

<sup>5</sup> The district court also improperly ignored the evidence that shows a one-to-one relationship between many DNIS and called numbers—evidence of infringement even under the flawed, overly-restrictive construction, discussed in greater detail in Sections VII.C.1.b. and VII.C.1.c., *infra*.

*Confidential Material Redacted*

**b. Genuine issues of fact preclude summary judgment of non-infringement under both the proper construction of “DNIS” and under the court’s incorrect construction**

The district court acknowledged that Katz adduced evidence showing both that (1) DHL’s accused systems had called numbers being associated with a single, unique DNIS, and (2) DHL’s accused systems had multiple DNIS associated with a single called number. (JA11-12.) In both cases, the evidence creates a triable issue of fact.

In DHL’s accused Brite IVR System, [REDACTED]

[REDACTED] As DHL’s system manual states, its [REDACTED]

[REDACTED] (JA75617-18 ¶ 7; JA71407; JA71409; JA71413; JA71416; JA75633 ¶ 78; JA71302; JA70891-95; JA71286-87 at 26:12-27:15; JA68214 at 43:20-44:1; JA68234 at 122:6-11; JA70992 at 27:6-19; JA70993 at 31:17-19; JA71523.) The DNIS was then [REDACTED]

[REDACTED] (JA75633-34 ¶ 81; JA71302; JA70922-31; JA68214 at 43:20-44:1; JA71286-87 at 26:12-27:15; JA71523; JA71305.) In the accused Brite IVR System, both the received [REDACTED]

<sup>6</sup> There is no dispute that the received DNIS and, likewise, the translated VDNs identify the called numbers as required by the claim construction. The only dispute is whether the DNIS and VDNs meet the “uniquely” portion of the district court’s construction. The district court’s summary judgment of non-infringement was predicated entirely on its mistaken conclusion that there must be one and only one DNIS (or VDN) for each called number. (JA11-12.)



*Confidential Material Redacted*

JA68109 at 164:7-18; JA71308; JA71310; JA70987; JA71100-40; JA70884;  
JA71313-17; JA68081 at 52:8-53:8; JA71319-23.)

For instance, Dr. Kelly described the relationship between the called number  
and the [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (*Id.*) [REDACTED]

[REDACTED]

[REDACTED]. (*Id.*)

In DHL's accused Genesys IVR System, the evidence and expert testimony  
show similar operation with respect to DNIS. The Genesys IVR System [REDACTED]

[REDACTED]

[REDACTED] (JA75635-36 ¶¶ 84-86; JA71344; JA71692-705; JA71792-  
801; JA67958 at 31:14-32:13; JA67962-63 at 48:2-50:4; JA71673.) For example,  
the Genesys IVR System would [REDACTED]

[REDACTED]. (JA75635 ¶¶ 84-85; JA71344; JA71692-705; JA71792-801; JA67958 at  
31:14-32:15; JA67962-63 at 48:2-50:4; JA71673.) From both the received [REDACTED]

[REDACTED]

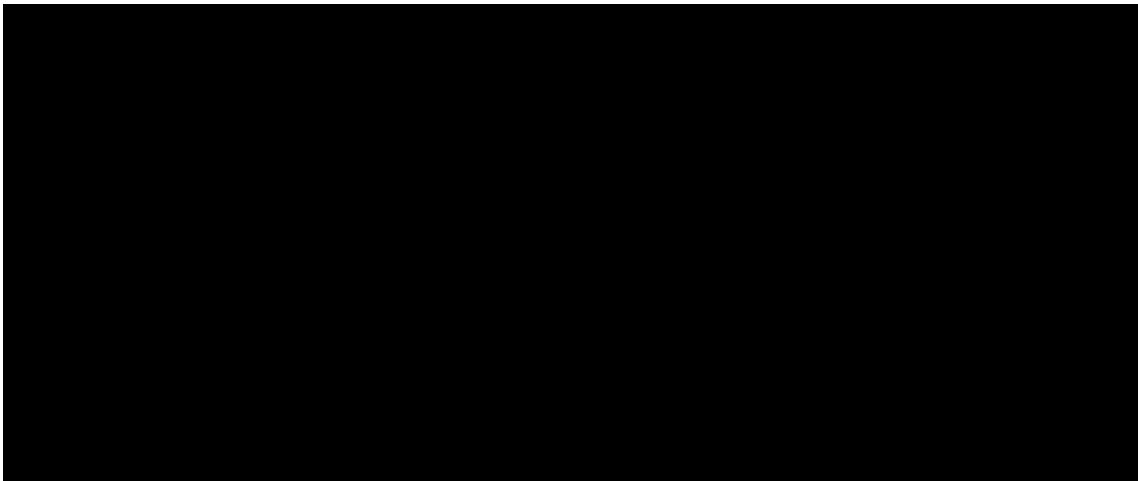
*Confidential Material Redacted*

[REDACTED]. (JA75635-36 ¶¶ 85, 87; JA67958 at 31:14-32:15; JA67962-63 at 48:2-50:4; JA71673; JA71692-705; JA70922-31; JA70939-40 at 43:20-44:1.)

A DHL spreadsheet maps called numbers [REDACTED]

[REDACTED]. (JA75636 ¶ 87; JA70922-31; JA70939-40 at 43:20-44:1.) [REDACTED]

[REDACTED]. For example:



(JA70922-31 (emphasis added); *see also* JA75636 ¶ 87; JA70939-40 at 43:20-44:1.)

Thus, even under the district court’s overly-restrictive construction of “DNIS,” requiring a one-to-one relationship with the called number, the evidence is sufficient to prove infringement by both accused systems, and more than demonstrates a triable issue of fact precluding summary judgment.

For the rare instances of [REDACTED]

[REDACTED]

*Confidential Material Redacted*

[REDACTED] (JA70922-31; JA75636 ¶ 87; JA70939-40 at 43:20-44:1.) Relying on DHL's own documents and witness testimony, Dr. Kelly explained:

[REDACTED]  
[REDACTED]  
[REDACTED] (JA JA75636 ¶ 87; JA70922-31; JA70939-40 at 43:20-44:1.)

Applying the proper claim construction—one that does not improperly limit infringement to only a single DNIS for each called number—this evidence also shows a genuine issue of material fact supporting reversal.

**c. The district court's summary judgment of non-infringement under its erroneous construction is legally flawed**

Of course, even if the district court's flawed construction were upheld, the evidence of [REDACTED] should still be sufficient to survive summary judgment. So how did the district court get around this simple fact? By inexplicably concluding that because the accused systems were also capable of receiving multiple DNIS that identify a called number, the systems as a whole do not infringe:

To determine whether VDNs "uniquely identify" a called number, the Court must examine how VDNs operated in the DHL system as a whole. (JA12.)

The district court cited no authority for its legally erroneous view that as long as an accused system is capable of a non-infringing use (under the court's erroneous construction), evidence of infringement can be disregarded. All that is required by the claim language is that the accused systems have the claimed structure that is capable of receiving DNIS. (JA590); *see also Hewlett-Packard Co. v. Bausch & Lomb*, 909 F.2d 1464, 1468 (Fed. Cir. 1990) (“[A]pparatus claims cover what a device *is*, not what a device *does*.”) (emphasis in original); *Microprocessor Enhancement Corp. v. Texas Instruments, Inc.*, 520 F.3d 1367, 1375 (Fed. Cir. 2008) (The claimed “pipelined processor...” is “a pipelined processor possessing the recited structure and **capable of** performing the recited functions”) (emphasis in original)). Given Katz's unrebutted evidence that the accused systems are both capable of receiving DNIS signals that have a one-to-one relationship with the called number and have in fact been used in that manner, Katz adduced more than enough evidence to preclude summary judgment of non-infringement. (*See* Section VII.C.1.b., above.)

The district court's holding is also contrary to its own Supplemental Claim Construction Order. In re-constructing “DNIS,” the district court recognized that absent evidence compelling otherwise, it is not proper to require that an accused system only be operated in an infringing manner in order to find infringement of a system claim. The district court accordingly rejected the defendants' attempts to

read the word “always” into the asserted claims. (JA8.) Specifically, the defendants urged a construction that would have required accused systems to only receive DNIS that “*always* uniquely identify the number called.” (*Id.* (emphasis added).) In omitting “always” from its reconstruction, the court noted there was no evidence to suggest that the claims should be interpreted to exclude infringement by accused systems that are not always operated in an infringing manner.<sup>7</sup> (*Id.*)

Because the district court’s finding of summary judgment is predicated on a claim interpretation that is incorrect as a matter of law, and because Katz adduced undisputed evidence of infringement even under the district court’s erroneous claim construction, summary judgment as to DNIS should be reversed.

## **2. “Pin-Number Data Based Upon Limited Use”**

### **a. The district court’s implied construction of “pin-number based on limited use” is inconsistent with the intrinsic and extrinsic record**

The claim language at issue recites a structure that qualifies calls “based upon a test of caller-entered identification data including caller pin-number data based upon limited use.”

---

<sup>7</sup> The district court acknowledged that its summary judgment findings were inconsistent with its Supplemental Claim Construction Order. (JA12.) The court tried to explain the inconsistency away by claiming that it only meant to clarify that a system failure would not avoid infringement. (*Id.*) The court identified no evidence supporting its pick-and-choose approach to claim interpretation and infringement analysis.

*Confidential Material Redacted*

The court improperly concluded that the recited function of qualification “based upon a test of caller-entered identification data including “pin-number based on limited use” requires a special “connection” of some kind between the “pin-number” and the limit on use. (JA15.) Specifically, the court held that in order for a pin-number to satisfy the limitation, the pin-number, itself, would need to be tested to limit use of that pin-number itself. (*Id.*) The court cited no intrinsic support for this claim interpretation, and there is none.

The claim language includes no recitation requiring that use must be limited based on a characteristic of the particular number entered. (JA590.) Nothing in the claim language excludes the accused operation of DHL’s accused system, which performed a test of the [REDACTED]

Nothing in the specification clearly disclaims or re-defines this ordinary claim language either, and the district court did not cite any purported specification support for its claim interpretation. (JA579-94.) Instead, the recited testing “based upon limited use” should be given its ordinary meaning—an interpretation that does not involve reading un-recited limitations into the claim.<sup>8</sup>

---

<sup>8</sup> The district court recognized that similar “limited use” terms should be given their plain and ordinary meaning in its first claim construction order. (JA78-79.)

*Confidential Material Redacted*

**b. Genuine issues of fact preclude summary judgment of non-infringement under the proper construction of “pin-number based on limited use”**

The district court ignored evidence that the [REDACTED] in an infringing manner for the accused systems. (JA14-15.) Katz and its expert Dr. Kelly identified evidence [REDACTED]

[REDACTED].<sup>9</sup> If a caller did not have a [REDACTED]. (JA75643-44 ¶¶ 115-118; JA70920; JA70987; JA71052-66; JA71068-73; JA70995-96 at 33:4-34:11; JA71026-32 at 71:19-77:8; JA71171-227; JA72767-90; JA75706-07.)

A caller also could not access the [REDACTED] [REDACTED] (*Id.*) A reasonable juror could therefore determine that the testing of the tracking numbers of the accused systems constituted testing “caller-entered identification data including pin-number data based upon limited use,” rendering summary judgment improper.

**D. The Court Erred in Granting DHL Summary Judgment of Non-Infringement of Claim 98 of the ‘863 Patent**

In finding non-infringement of the DNIS limitation of claim ‘863:98, the district court relied on the same flawed construction of “DNIS” and improperly ignored the same evidence of infringement. (JA16.) For the same reasons as set

---

<sup>9</sup> The district court agreed with Katz and determined that the package-tracking number met the “pin-number” portion of the limitation. (JA14.)

forth above in Section VII.C.1. and V.B.1., the district court erred in holding that the accused Brite IVR System did not infringe the DNIS limitation of claim ‘863:98. (*See also* JA75645-48 ¶¶ 126-133; JA75649-52 ¶¶ 138-147; JA70922-31; JA70889-95; JA71286-87 at 26:12-27:15; JA71302; JA71305; JA70934-35 at 24:11-25:24; JA70942-43 at 54:17-55:11; JA70955-56 at 99:16-100:10; JA70957-59 at 106:21-108:3; JA70970-78 at 119:15-124:3; JA70981 at 139:20-24; JA70845-48 at 78:24-79:25; JA70847-48 at 93:24-94:8; JA70864 at 164:7-18; JA71308; JA71310; JA70987; JA71100-40; JA70884; JA71075-81; JA71319-23.) The district court’s finding of non-infringement therefore should be reversed.

**E. The Court Erred in Granting DHL Summary Judgment of Non-Infringement of Claim 19 of the ‘551 Patent**

As with claim ‘863:98, in finding non-infringement of the DNIS limitation of claim ‘551:19, the district court relied on the same flawed construction of “DNIS” and improperly ignored the same evidence of infringement. (JA16.) For the same reasons as set forth above in Section VII.C.1. and V.B.1-2., the district court erred in holding that the accused Brite IVR and Edify IVR Systems did not infringe the DNIS limitation of claim ‘551:19. (*See also* JA75662 ¶ 196; JA75663 ¶ 202; JA75664-67 ¶¶ 210-219; JA75667-68 ¶¶ 220-226; JA70889-918; JA71100-40; JA70970-75; JA72240-72; JA71148-49; JA71163-65; JA70922-31; JA70987; JA71052-66; JA71068-73; JA70992-96; JA71026-32; JA71171-227; JA71767-90; JA71302; JA70888-918; JA71286-87; JA70939-40; JA70973; JA71523; JA71302;



*Confidential Material Redacted*

JA70922-31; JA71305; JA75662-68 ¶¶ 196, 202, 210-219; 220-226.) The district court's finding of non-infringement therefore should be reversed for this reason, alone.

Further, for the Edify IVR System, the district court's Summary Judgment Order went beyond the scope of DHL's summary judgment motion. DHL did not contest that the Edify IVR System [REDACTED]. (JA78584.) Instead, DHL only alleged that there was no evidence that Edify IVR System [REDACTED]

[REDACTED]<sup>10</sup> (*Id.*) In fact, DHL admitted that [REDACTED]

[REDACTED]  
(*Id.*) Accordingly, there is no question that there is a triable issue of fact as to whether the accused Edify IVR System received DNIS.

**F. The District Court's Collateral Estoppel Ruling Regarding '120 Patent Claim 34 Should Be Vacated If This Court Vacates the PTAB's Decision Affirming the Examiner's Rejection of Claim 34.**

The district court ruled that Katz is collaterally estopped from asserting '120 patent claim 34 on the basis that the PTAB affirmed the rejection of claim 34 in reexamination. (JA3-4.) Katz conditionally challenges the district court's ruling on the grounds that the sole basis for the district court's ruling—the PTAB decision—is subject to a pending appeal to this Court (Appeal No. 13-1139). Katz

---

<sup>10</sup> The district court rejected DHL's format arguments for claim '551:19. (JA20-21.)

has requested that this Court vacate the PTAB's decision affirming the rejection of '120 patent claim 34.<sup>11</sup>

In the event this Court in Appeal No. 13-1139 vacates the PTAB's decision affirming the rejection of claim 34 prior to issuance of the Court's ruling in the present appeal, the basis for the district court's collateral estoppel ruling will no longer exist, and the district court's collateral estoppel ruling should likewise be vacated. Because this case is presently on appeal before this Court and the basis for the district court's ruling is not subject to reasonable dispute, the Court may appropriately apply its ruling in Appeal No. 13-1139 in the present case without needing to remand the issue for consideration by the district court.

Alternatively, if the Court decides the present appeal before deciding the 13-1139 case appeal, the Court should instruct the district court that if this Court vacates the PTAB's decision affirming the Examiner's rejection of '120 patent claim 34, the district court's collateral estoppel ruling likewise should be vacated, for example through a motion for reconsideration under Federal Rule 60(b). *See* Fed. R. Civ. P. 60(b)(5)-(6) (judgment or order may be vacated if "it is based on an earlier judgment that has been reversed or vacated" or for "any other reason that justifies relief").

---

<sup>11</sup> Katz's grounds for challenging the PTAB's decision are presented in Katz's briefs in the -1139 appeal.

## **VIII. CONCLUSION AND STATEMENT OF RELIEF SOUGHT**

Katz requests this Court reverse the appealed final judgment and remand for proceedings consistent with this Court's opinion.

Specifically, Katz requests that this Court:

(1) vacate the district court's implied claim construction of claim '285:61's "means for processing..." limitation;

(2) reverse summary judgment of non-infringement of claim '285:61 for DHL's accused Brite and Edify IVR Systems;

(3) vacate the district court's revised claim construction of "DNIS" and properly construe that term as "signals or data that identify the number called. DNIS is not limited to the full ten-digit number;"

(4) vacate the district court's implied claim construction of claim '120:34's "pin-number based upon limited use" limitation;

(5) reverse summary judgment of non-infringement of claim '120:34 for DHL's accused Brite and Genesys IVR Systems;

(6) reverse summary judgment of non-infringement of claim '863:98 for DHL's accused Brite IVR System;

(7) reverse summary judgment of non-infringement of claim '551:19 for DHL's accused Brite and Edify IVR Systems; and

(8) vacate the district court's finding that Katz is collaterally estopped from asserting that claim '120:34 is valid.

Dated: October 8, 2013

Respectfully submitted,

COOLEY LLP

/s/ Sarah J. Guske

Sarah J. Guske

Cooley LLP

*Attorneys for Appellant*

*Ronald A. Katz Technology Licensing,  
L.P.*

## **ADDENDUM**

**ADDENDUM TABLE OF CONTENT**

	<i><b>Page</b></i>
June 12, 2013 Order Granting In Part and Denying In Part DHL Defendants' Second Individual Motion for Summary Judgment.....	JA1
December 18, 2013 Order Granting In Part and Denying In Part Katz's Motion to Strike Portions o DHL's Motion for Summary Judgment.....	JA24
April 26, 2012 Supplemental Claim Construction Order .....	JA33.1
June 25, 2013 Judgment.....	JA33.13
September 7, 2011 Order .....	JA33.15
U.S. Patent No. 5,351,285.....	JA405
U.S. Patent No. 5,684,863.....	JA459
U.S. Patent No. 5,815,551.....	JA492
U.S. Patent No. 5,974,120.....	JA579

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

**UNITED STATES DISTRICT COURT  
CENTRAL DISTRICT OF CALIFORNIA**

In Re:  
  
Katz Interactive Call Processing Patent  
Litigation  
  
This document relates to:  
  
RONALD A. KATZ TECHNOLOGY  
LICENSING, L.P.,  
Plaintiff,  
v.  
AMERICAN INTERNATIONAL GROUP,  
INC. et al.,  
Defendants

Case No. MDL 2:07-ML-1816-B-RGK  
(FFM<sub>x</sub>)  
  
Case No. MDL 2:07-CV-2192-B-RGK  
(FFM<sub>x</sub>)  
  
ORDER GRANTING IN PART AND  
DENYING IN PART DHL  
DEFENDANTS' SECOND  
INDIVIDUAL MOTION FOR  
SUMMARY JUDGMENT  
  
7649/535

**I**  
**INTRODUCTION**

After this Court issued rulings on both joint and individual summary judgment motions in this multidistrict patent litigation, the plaintiff, Ronald A. Katz Technology Licensing, L.P. (“Katz”) appealed. The Federal Circuit’s decision affirmed, vacated and reversed various rulings. *In re Katz*, 639 F.3d 1303 (Fed. Cir. 2011). Consequently, a few claims that this Court declared invalid were revived. Since some of this Court’s invalidity findings were issued prior to the round of individual summary judgment motions, the defendants never had an opportunity to raise their individual defenses to these claims. On September 7, 2011, this Court issued a Case Management Order governing the post-remand proceedings. (DE 7437). The order permitted the Group B defendants to file a second round of individual summary judgment motions so that they could address the revived claims. Accordingly, on June 15, 2012, defendants DHL Express (USA), Inc. and Sky Courier, Inc. (collectively “DHL”) filed their motion for summary judgment.

There are four remaining claims in this particular lawsuit. They are claim 61 of U.S. Patent No. 5,351,285 (“the ‘285 patent”), claim 98 of U.S. Patent No. 5,684,863 (“the ‘863 patent”), claim 19 of U.S. Patent No. 5,815,551 (“the ‘551 patent”), and claim 34 of U. S. Patent No. 5,974,120 (“the ‘120 patent”). DHL’s motion seeks summary judgment of invalidity with respect to claim 34 of the ‘120 patent and claim 61 of the ‘285 patent. DHL also asks for declaration of non-infringement with respect to all four claims.



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

## II LEGAL STANDARD

Summary judgment should be granted “if the pleadings, the discovery and disclosure materials on file, and any affidavits show that there is no genuine issue as to any material fact and that the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(c); *see Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 247-248 (1986); *see also Karlin Tech., Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 970 (Fed. Cir. 1999). A dispute about a material fact is “genuine” only if “the evidence is such that a reasonable jury could return a verdict for the nonmoving party.” *Id.* A party opposing a properly supported motion for summary judgment “may not rest upon the mere allegations or denials of his pleading, but . . . must set forth specific facts showing that there is a genuine issue for trial.” *Id.* (quoting *First National Bank of Arizona v. Cities Service Co.*, 391 U.S. 253 (1968)). “If the evidence [opposing summary judgment] is merely colorable, or is not significantly probative, summary judgment may be granted.” *Id.* at 249-250 (citations omitted).

## III DECISION

### A. Collateral Estoppel

Claim 34 of the ‘120 patent was rejected by the PTO in a final office action dated March 20, 2009, finding it invalid as obvious in light of Calabrese and Periphonics. Katz appealed the PTO’s decision to the Board of Patent Appeals and Interferences (“BPAI”) and the BPAI affirmed the obviousness rejection. DHL argues that this invalidity determination is binding on Katz in this action by reason of collateral estoppel.

A party asserting collateral estoppel must show, *inter alia*, that the issue was previously decided by a valid and final judgment. *Sec. People, Inc. v. Medeco Sec. Locks, Inc.*, 59 F. Supp. 2d 1040, 1044 (N.D. Cal. 1999) (citing *Kamilche Co. v. United States*, 53 F.3d 1059, 1062 (9th

1 Cir. 1995)); *see also Innovad Inc. v. Microsoft Corp.*, 260 F.3d 1326, 1333-4 (Fed. Cir. 2001)  
2 (“final judgment” envisions “a complete adjudicative process”). Katz argues that collateral  
3 estoppel does not apply because the BPAI’s decision was not a final determination. Katz points  
4 out that after the BPAI’s initial decision affirmed the rejection of claim 34 in reexamination,  
5 Katz timely exercised its right to request a rehearing of that decision.  
6

7 At the time of Katz’s opposition, Katz’s request for reconsideration was still pending.  
8 However, on September 28, 2012, the Patent Trial and Appeal Board (“Board”) issued a decision  
9 denying plaintiff Katz’s request for rehearing. (January 3, 2013 DirecTV Defendants’ Notice of  
10 Supplemental Authority Regarding Its Second Individual Motion for Summary Judgment.)  
11 Katz’s opposition admits that such a determination is final.<sup>1</sup> Since Katz raised no other  
12 challenges to DHL’s argument for collateral estoppel, this Court GRANTS IN PART DHL’s  
13 summary judgment motion and finds that Katz is estopped from asserting that claim 34 of the  
14 ‘120 patent is valid.  
15

#### 16 **B. Invalidity Challenges Based on Prior Art**

17 DHL’s motion for summary judgment argues that both claim 34 of the ‘120 patent and  
18 claim 61 of the ‘285 patent are invalid in view of the prior art. However, on December 18, 2012,  
19 this Court granted in part Katz’s motion to strike portions of DHL’s summary judgment motion.  
20 (DE 8172.) Specifically, this Court struck those portions of DHL’s summary judgment motion  
21 and related filings that included new means-plus-function analysis. This ruling impacted DHL’s  
22 invalidity arguments with respect to both claims at issue. In addition, this Court also struck all  
23 portions of DHL’s summary judgment motion and related filings that argue that claim 61 of the  
24 ‘285 patent is invalid. The remaining portions of DHL’s summary judgment motion do not make  
25 out a *prima facie* case of invalidity. Accordingly, this Court DENIES IN PART those portions of  
26  
27

28 <sup>1</sup> “[U]nder governing law, the BPAI decision is not ‘final’ until the BPAI issues a decision on the request for rehearing (see 37 C.F.R. § 41.52).” (Katz Opp’n at 1-2 (emphasis omitted).)

DHL's summary judgment motion that assert that claim 34 of the '120 patent and claim 61 of the '285 patent are invalid due to the prior art.

### C. Joint Infringement

DHL argues it cannot be liable for direct infringement because some of the components accused of infringing the claims belong to AT&T, not DHL. "For a party to be liable for direct patent infringement under 35 U.S.C. § 271(a), that party must commit all the acts necessary to infringe the patent, either personally or vicariously." *See Akamai Technologies, Inc. v. Limelight Networks, Inc.*, 692 F.3d 1301, 1307 (Fed. Cir. 2012) (*en banc*). Here, DHL notes that all four remaining claims include limitations that recite a "communication facility automatically provide [. . .] signals indicative of called numbers" or caller telephone numbers." But DHL points out that the accused communication facility belongs to AT&T, not DHL.

In response, Katz argues that the four claims do not cover a communications facility but are instead directed towards systems that operate with a communications facility. The relevant language from each of these claims follows. Claim 34 of the '120 patent recites "[a] telephone call processing system *for receiving calls through* a telephonic communication facility . . . ."<sup>2</sup> Claim 61 of the '285 patent recites "[a]n interface control system *for use with*, (1) a telephonic communication facility . . . ."<sup>3</sup> Both claim 98 of the '863 patent, and claim 19 of the '551 patent recite "[a]n analysis control system *for use with* a communication facility . . . ."<sup>4</sup> The "for receiving calls through" and "for use with" language demonstrates that these claims are directed to systems that operate with a communication facility; they are not directed to the communication facility itself. The fact that the claims describe the "communication facility" as providing data does not change this conclusion. Accordingly, AT&T's ownership of facilities

<sup>2</sup> The quoted language is found in claim 28. Claim 34 of the '120 patent is dependent on independent claim 28.

<sup>3</sup> The quoted language is found in claim 54. Claim 61 of the '285 patent is dependent on independent claim 54.

<sup>4</sup> The quoted language is found in claim 14 of the '551 patent and claim 96 of the '863 patent. Claim 19 of the '551 patent dependent on independent claim 14 and claim 98 of the '863 patent is dependent on independent claim 96.

1 that operated with the accused DHL systems has no impact on whether DHL infringed the four  
2 remaining claims.

3         Moreover, even if this Court were to interpret the claims differently, Katz argues that  
4 AT&T was under the control and direction of DHL. “Direct infringement applies when the acts  
5 of infringement are committed by an agent of the accused infringer or a party acting pursuant to  
6 the accused infringer’s direction or control.” *Akamai Tech.*, 692 F.3d at 1307. Katz identifies  
7 evidence that suggests that AT&T was contractually obligated to provide its communications  
8 facility to operate with DHL’s systems and that DHL provided particular directions on how those  
9 facilities should operate. This evidence presents a triable issue of fact with respect to both issues  
10 of agency and direction.  
11

12         Accordingly, this Court DENIES IN PART DHL’s summary judgment motion as it  
13 relates to the issue of joint infringement.  
14

#### 15         **D. Non-Infringement**

##### 16                 **1. Legal Standard – Non-Infringement**

17         In determining whether an allegedly infringing device falls within the scope of the  
18 claims, a two-step process is used: first, the court must determine as a matter of law the meaning  
19 of the particular claim or claims at issue; and second, it must consider whether the accused  
20 product infringes one or more of the properly construed claims. *Allen Eng’g Corp. v. Bartell*  
21 *Indus., Inc.*, 299 F.3d 1336, 1344 (Fed. Cir. 2002). The second inquiry is a question of fact,  
22 although summary judgment of infringement or non-infringement may nonetheless be  
23 appropriate when no genuine dispute of material fact exists. *Irdeto Access, Inc. v. Echostar*  
24 *Satellite Corp.*, 383 F.3d 1295, 1299 (Fed. Cir. 2004) (quoting *Bai v. L & L Wings, Inc.*, 160  
25 F.3d 1350, 1353 (Fed. Cir. 1998)).  
26  
27  
28

1 The patentee bears the burden of proving infringement by a preponderance of the  
2 evidence. *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1535 (Fed. Cir. 1991). This burden can  
3 be met by showing that the patent is infringed either literally or under the doctrine of equivalents.  
4 See *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1318 (Fed. Cir. 2004). To  
5 support a finding of literal infringement, the patentee must establish that “every limitation recited  
6 in the claim appears in the accused product, i.e., the properly construed claim reads on the  
7 accused product exactly.” *Jeneric/Pentron, Inc. v. Dillon Co.*, 205 F.3d 1377, 1382 (Fed. Cir.  
8 2000) (citing *Amhil Enters. Ltd. v. Wawa, Inc.*, 81 F.3d 1554, 1562 (Fed. Cir. 1996)).

## 10 **2. Claim 61 of the ‘285 Patent**

11 Claim 61 of the ‘285 patent is dependent on independent claim 54. Together the claims  
12 recite:

13  
14 54. An interface control system for use with, (1) a telephonic communication  
15 facility including remote terminals for individual callers, wherein said remote  
16 terminals may comprise a conventional telephone instrument including voice  
17 communication means and digital input means for providing data, and (2) a  
18 multiple port, multiple format processor for concurrently processing data from a  
19 substantial number of callers in any of a plurality of formats, said telephonic  
communication facility automatically provides call data signals, as to indicate  
called numbers to select a particular format from said plurality of formats, and (3)  
a plurality of live operator attended terminals with prompting capability for a  
plurality of formats, said interface control system comprising:

20 interface means for providing an introductory automated voice message relating  
21 to a specific format from said plurality of formats;

22 means for forwarding coupled to said interface means for forwarding a call from  
23 any one of said remote terminals to one of said plurality of live operator attended  
terminals;

24 **means for processing coupled to said forwarding means for processing caller**  
25 **information data entered by an operator at said live operator attended**  
26 **terminal;**

27 means for storing coupled to said processing means for storing certain select data  
28 from said caller information data entered by said operator; and

1 means for reconnecting said call to said interface means to receive certain  
2 processed data via an automated voice message.

3 61. An interface control system according to claim 54, wherein a plurality of  
4 called numbers are associated with said select processing format.

5 (emphasis added).

6 Katz accuses DHL's Brite and Edify systems of infringing claim 61 of the '285 patent.  
7 Claim 61 requires a "means for processing . . . for processing caller information data entered by  
8 an operator at said live operator attended terminal." DHL interprets this limitation to require  
9 more than simply storing data. Relying on this interpretation DHL argues that the accused  
10 systems did not infringe claim 61 because they only stored data; they did not process it.

11 The parties agree that the term "processing" refers to "manipulation of data which  
12 performs some operation or sequence of operations on the data." (Plaintiff's Statement of  
13 Genuine Issues at ¶ 83.) However, Katz says that the accused systems processed caller  
14 information in two ways. First, Katz says that receiving data entered by an operator and  
15 preparing it for storage in a database involves substantial amounts of processing as the data  
16 moves through the various software layers. (*Id.* at ¶ 85.) Second, Katz points out that the  
17 customer service representatives could look up a caller by entering the caller's telephone number  
18 and attempting to match it against previously entered information. Katz says that this matching  
19 was a form of "processing." DHL argues that neither of these operations constitutes "processing"  
20 because they do not manipulate data. Rather, they leave the data unaltered for reading.  
21

22 This Court sides with DHL with respect to the storing operation. The '285 patent clearly  
23 did not intend to refer to storing data (including any ancillary operations associated with storing)  
24 when it used the term "processing." The specification refers to processing and storing separately.  
25 (*See, e.g.*, '285 patent at 2:37-38 ("Data is recorded and processing procedures also may be  
26 controlled by call data."); 8:47-49 ("the call data is registered to be amenable for processing  
27  
28

1 operations”)). Moreover, the claim recites both a “means for processing” and a “means for  
2 storing.” Therefore, this Court finds that receiving data entered by an operator and preparing it  
3 for storage does not satisfy the “means for processing . . . for processing caller information data  
4 entered by an operator at said live operator attended terminal” limitation.

5  
6 With respect to the “look up” operation, DHL argues that Katz never disclosed this  
7 infringement theory until the declaration Kelly submitted in opposition to the current summary  
8 judgment motion. A review of Kelly’s expert report shows that this theory was not present in  
9 either the body of the report (Expert Report of Dr. John Kelly Regarding Common Infringement  
10 Issues (“Kelly Report”) at p. 56 attached as Ex. 6 to Dartt Decl.) or the accompanying claim  
11 chart (Ex. DHL-3 to Kelly Report at pp. 4-5 attached as Ex. 8 to Dartt Decl.). This Court has  
12 previously stricken new infringement theories at this state of the litigation and does so here.  
13 Accordingly, this Court STRIKES the portion of Katz’s opposition that argues that the  
14 “processing means” limitation is satisfied when a customer service representative looks up a  
15 caller’s information.  
16

17 Based on the foregoing, this Court GRANTS DHL’s motion for summary judgment of  
18 non-infringement as it relates to claim 61 of the ‘285 patent.

19  
20 **3. Claim 34 of the ‘120 Patent**

21 Claim 34 of the ‘120 patent is dependent on independent claim 28. Together the claims  
22 recite:

23 28. A telephone call processing system for receiving calls through a telephonic  
24 communication facility from a multitude of terminals in a toll free call mode for  
25 processing data in accordance with an operating process format and involving  
26 digital signals including called number identification signals (DNIS)  
automatically provided by said telephonic communication facility, said system  
comprising:

27 **first response unit** means for receiving calls in said toll free call mode wherein  
28 said called number identification signals (**DNIS**) **indicative of at least one of a  
plurality of distinct called numbers identifies said operating process format;**

voice generator means for prompting callers to enter data in response to voice prompts wherein said data entered by said callers is used to update data for said callers in a database relating to said callers;

**qualification means for qualifying at least said calls utilizing said one of said plurality of distinct called numbers** in said toll free call mode received by said first response unit to provide qualified calls **based upon a test of caller entered identification data including caller pin-number data based upon limited use;**

**second response unit means** for receiving calls in said toll free call mode wherein called number identification signals **(DNIS) indicative of one other of said plurality of distinct called numbers identifies said operating process format;**

means for concurrently processing calls received by said first response unit means and said calls received by said second response unit for concurrent processing of data in accordance with common operations of said operating process format.

34. A telephone call processing system according to claim 28, wherein at least select digits of caller telephone numbers are automatically provided by digital signals from the telephonic communication facility.

(emphasis added)

Earlier in this decision, this Court found that Katz is estopped from asserting that claim 34 of the ‘120 patent is valid. Nevertheless, this decision will address the infringement issues so that these issues may be raised together in any subsequent appeal. DHL argues that it does not infringe claim 34 of the ‘120 patent for four different reasons. This decision addresses each of these arguments in turn.

**a. DHL’s Genesys IVR System**

Although Katz provided infringement contentions with respect to the Brite IVR system, DHL argues that it did not identify any part of the Genesys IVR system that satisfied the “first response means” and “qualification means” limitations. Accordingly, DHL asks for summary judgment of non-infringement. In response, Katz argues that a combination of the Brite IVR and Genesys IVR systems infringed claim 34 of the ‘120 patent. Consequently, Katz says that it did not need to provide contentions with respect to the Genesys IVR alone. However, DHL says that



1 “Genesys is its own complete system” (DHL Reply at 8), and argues that Katz must provide  
2 complete infringement contentions with respect to that system. This Court disagrees. Katz does  
3 not contend that the Genesys system infringed claim 34 by itself. Therefore, there is no reason  
4 for Katz’s infringement contentions to identify a portion of the Genesys IVR that corresponds to  
5 *each* claim limitation. This Court DENIES IN PART DHL’s summary judgment motion at it  
6 relates to the Genesys IVR. Of course, Katz may not later assert that the Genesys IVR infringed  
7 claim 34 of the ‘120 patent by itself.

9 **b. DNIS**

10 Claim 34 requires both a “first response unit means for receiving calls . . . wherein said  
11 called number identification signals (DNIS) indicative of at least one of a plurality of distinct  
12 called numbers identifies said operating process format” and a similar “second response unit  
13 means” in which the DNIS is indicative of “one other of said plurality of distinct called  
14 numbers.” Katz argues that the accused Brite and Genesys IVR systems received a DNIS signal  
15 in the “form of a four or five-digit DNIS number.” (Kelly Decl. at ¶ 78.) Upon receiving this  
16 number, the accused DHL systems translated the number “into a corresponding 4 or 5-digit  
17 Vector Directory Number.” (*Id.* at ¶ 81.) The Vector Director Numbers (“VDNs”) were then  
18 used determine the specific greeting, menu options and call processing flow (*i.e.* the accused  
19 format). (*Id.* at ¶ 83.)

20  
21  
22 At the Federal Circuit’s direction, this Court clarified its definition of DNIS. The new  
23 definition says that “DNIS refers to signals or data that *uniquely* identify the number called.”  
24 (April 26, 2012 Supplemental Claim Construction Order at p. 7 (emphasis added).) Based on this  
25 definition, DHL argues that VDNs do not satisfy the DNIS limitation because they do not  
26 uniquely identify the number called. Katz’s expert says sometimes the DHL VDNs had a one to  
27  
28

1 one correspondence with the dialed number. (*Id.* at ¶ 87.) At other times, multiple VDN's  
2 corresponded to a single dialed number. (*Id.*)

3 Katz says that this is sufficient to show that DHL's VDNs satisfy the DNIS limitation.  
4 Katz is essentially arguing that when some VDNs correspond to a single called number and  
5 others correspond to more than one number, this Court should examine only the former numbers  
6 to determine whether VDNs in the DHL systems *uniquely* identify the called number. As it did in  
7 a previous related case, this Court rejects Katz's analysis. (*See* April 21, 2011 Order Granting  
8 Macy's Motion for Reconsideration of Individual Summary Judgment Order and Denying  
9 Plaintiff's Motion for Reconsideration of Individual Summary Judgment at 2, DE 7338). To  
10 determine whether VDNs "uniquely identify" a called number, the Court must examine how  
11 VDNs operated in the DHL system as a whole. Under that analysis, it is clear that the VDNs did  
12 not uniquely identify the accused numbers.  
13  
14

15 This ruling may appear to conflict with this Court's supplemental claim construction  
16 order. In that decision, this Court declined the defendants' request to define DNIS to "always"  
17 uniquely identify the called number. However, the only reason the Court omitted the "always"  
18 was because it might "foreclose infringement if the accused systems were not '100 % operational  
19 and accurate.'" (April 26, 2012 Supplemental Claim Construction Order at 7.) Thus, a one to one  
20 correspondence between the called number and any item accused of satisfying the DNIS  
21 limitation is still required for literal infringement. Accordingly, this Court GRANTS IN PART  
22 DHL's summary judgment of non-infringement as it relates to claim 34 of the '120 patent and  
23 the DNIS limitation.  
24

25 **c. Restricting Calls Based On Repeat Calls**

26 Claim 34 also requires a "qualification means . . . to provide qualified calls based upon a  
27 test of caller entered identification data including caller pin-number data based upon limited  
28

1 use.” The parties agree that the “qualification means” is a means plus function limitation  
2 governed by 35 U.S.C. § 112(f). The construction of a means-plus-function limitation follows a  
3 two-step approach. First, the claimed function must be identified, staying true to the claim  
4 language and the limitations expressly recited by the claims. Next, the corresponding structures  
5 in the written description that perform those functions must be ascertained. *Chicago Bd. Options*  
6 *Exchange, Inc. v. International Securities Exchange, LLC*, 677 F.3d 1361, 1367 (Fed. Cir. 2012)  
7 A means-plus-function claim “shall be construed to cover the *corresponding structure*, material,  
8 or acts described in the specification or equivalents thereof.” 35 U.S.C. § 112(f).  
9

10 Here, the parties agree that the recited function of the “qualification means” is  
11 “qualifying at least said calls utilizing said one of said plurality of distinct called numbers in said  
12 toll free call mode received by said first response unit to provide qualified calls based upon a test  
13 of caller-entered identification data including caller pin-number data based upon limited use” and  
14 that the structures that perform this function are the response unit 18, control unit 28, and free-  
15 call memory 32 depicted in the ‘120 patent specification. DHL points out that the specification  
16 describes how these structures are used to determine whether or not the assigned qualification  
17 number has been previously used. DHL then says that its systems did not restrict calls to the 800  
18 numbers based on the number of repeat calls and concludes that there can be no infringement.  
19

20 This Court rejects DHL’s argument because it attempts to incorrectly import additional  
21 functional limitations into the “qualification means.” Restricting calls based on the number of  
22 repeat calls is not part of this limitation’s recited function. Accordingly, this Court DENIES IN  
23 PART DHL’s summary judgment of non-infringement as it relates to claim 34 of the ‘120 patent  
24 and the issue of restricting calls based on repeat calls.  
25  
26  
27  
28

**d. Pin-Number Based on Limited Use**

As stated above, the qualification means qualifies calls “based upon a test of caller-entered identification data including caller pin-number data based upon limited use.” Katz says that this limitation is satisfied because the accused DHL systems used tracking numbers to determine whether callers could proceed (*i.e.* qualify). Under this theory, the tracking number corresponds to the required “pin number.” Moreover, because a caller was not allowed to proceed to the systems’ tracking functions if it entered too many tracking numbers, Katz says that the “limited use” requirement is also satisfied.

DHL argues Katz’s infringement theory fails for two reasons. First, DHL says that the tracking number is not a pin-number because inputting the tracking number did not qualify a caller to access the system. Katz responds by pointing out that if a caller did not have a tracking number, the call could not proceed to the systems’ tracking functions. According to Katz this shows that the accused systems qualified calls based on the tracking numbers. DHL’s argument raises a legitimate non-infringement defense. The qualification means qualifies calls. Calls that do not qualify do not gain access to the system or parts of the system. Here, a jury could conclude that the tracking numbers simply constitute the data that the DHL systems needed for a particular function, tracking packages. However, a reasonable jury could also conclude that the tracking numbers qualified callers to use particular functions of the DHL systems. Accordingly, this Court finds that Katz has raised a triable issue of fact and DENIES IN PART DHL’s summary judgment motion as it relates to the “qualifying at least said calls” limitation.

Second, DHL argues that the tracking numbers do not satisfy the “based upon limited use” limitation. DHL interprets this phrase to mean that a caller cannot repeatedly access a format using the same dial in code. Since a user could repeatedly check on the status of a package using the same tracking number, DHL argues there can be no infringement. Katz

1 responds by saying that DHL is impermissibly importing limitations from the specification. This  
2 Court agrees with Katz to an extent. There is nothing in the claim language that suggests that the  
3 “limited use” requirement must limit the number of times a caller can access the system.  
4 However, the claim’s “based upon” language clearly links the pin-number to the “limited use”  
5 requirement. But the evidence does not show any connection between the specific DHL tracking  
6 numbers and any particular limits on use. Regardless of the tracking numbers involved, the DHL  
7 systems only allowed the caller to track five packages in a single call. (Kelly Decl. at ¶ 116.)  
8 Thus, the accused DHL systems did not qualify calls “based upon a test of caller-entered  
9 identification data including caller pin-number data based upon limited use.” Accordingly, this  
10 Court GRANTS IN PART DHL’s summary judgment motion and finds that the accused DHL  
11 systems do not infringe claim 34 of the ‘120 patent because there is no evidence showing that  
12 “based upon limited use” limitation is satisfied.  
13  
14

#### 15 4. Claim 98 of the ‘863 Patent

16 Claim 98 of the ‘863 patent is dependent on independent claim 96. Together the claims  
17 recite:

18 96. An analysis control system for use with a communication facility including  
19 remote terminals for individual callers, wherein each of said remote terminals  
20 may comprise a conventional telephone instrument including voice  
21 communication means, and digital input means in the form of an array of  
22 alphabetic numeric buttons for providing data, said analysis control system  
23 comprising:

24 **an interface structure** coupled to said communication facility to interface said  
25 remote terminals for voice and digital communication, **and including means to**  
26 **receive answer data signals provided by said individual callers** from said  
27 remote terminals wherein said communication facility automatically provides  
28 **called number identification data signals indicating a called number (DNIS)**  
**dialed by an individual caller** and said called number is one of a plurality of  
called numbers;

voice generator structure coupled through said interface structure for actuating  
said remote terminals as to provide vocal operating instructions to said individual  
callers;

1  
2 record structure including memory and control means for storing answer data  
3 signals and for receiving identification data signals for specific of said individual  
4 callers, said record structure further including means for receiving additional  
5 identification data signals on-line for said specific of said individual callers and  
6 for storing said additional identification data signals in said record structure for  
7 subsequent identification of said individual callers;

8  
9 **means for processing at least certain of said answer data signals relating to**  
10 **select ones of said individual callers; and**

11  
12 qualification structure for verifying said identification data signals for specific of  
13 said individual callers against a file of stored identification data.

14  
15 98. An analysis control system according to claim 96, **wherein said**  
16 **identification data signals comprise caller customer number data.**

17 (emphasis added).

18  
19 DHL argues that it does not infringe claim 98 of the ‘863 patent for three different  
20 reasons. This decision addresses each of these arguments in turn.

21  
22 **a. DNIS**

23  
24 Like claim 34 of the ‘120 patent, claim 98 of the ‘863 patent requires a system that  
25 receives “called number identification data signals indicating a called number (DNIS).” The  
26 parties agree that the accused systems received four or five digit numbers and that these numbers  
27 were translated into VDNs. But they disagree about whether these VDNs satisfy the DNIS  
28 limitation. For the reasons discussed above, this Court finds that they do not. Accordingly, this  
Court GRANTS IN PART DHL’s summary judgment of non-infringement as it relates to claim  
98 of the ‘863 patent and the DNIS limitation.

**b. Caller Customer Number Data**

Claim 98 requires that “said identification data signals comprise caller customer number  
data.” The Court has previously interpreted “customer number data” to mean “a number assigned  
to a customer by a vendor or merchant or recognized by a vendor or merchant for the purpose of  
identification of the customer. The customer number is distinct from a credit card number.” (Feb.

21, 2008 Claim Construction Order at 27.) Katz argues that this limitation is satisfied because the accused systems received the customer's telephone number. However, DHL's summary judgment argues that a telephone number cannot be "caller customer number data."

DHL argues that telephone numbers cannot be "caller customer number data" for two reasons. First, DHL relies on the fact that this Court has previously held that a telephone number is a form of a "personal identification data."<sup>5</sup> Second, DHL points out that a telephone number did not *always* identify customers. This Court rejects these arguments for the reasons Katz sets forth. First, just because a telephone number constitutes "personal identification data" does not mean that the telephone number cannot also be a caller customer number. Second, Katz has presented evidence that the accused Brite IVR system used a caller's number for the purpose of identifying the caller. The fact that this method was not always successful does not mean that a caller's telephone number cannot be personal identification data. Accordingly, this Court DENIES IN PART DHL's summary judgment motion as it relates to the "caller customer number data" limitation.

**c. Means for Processing**

Claim 98 also requires a "means for processing at least certain of said answer data signals relating to select ones of said individual callers." The parties agree that the "means for processing" is a means plus function limitation governed by 35 U.S.C. § 112(f). As previously stated, the construction of a means-plus-function limitation follows a two-step approach. First, the claimed function must be identified, staying true to the claim language and the limitations expressly recited by the claims. Next, the corresponding structures in the written description that

---

<sup>5</sup> The Court ruled that "personal identification data" means "data that is personal or specific to a caller that permanently identifies the caller to the world at large and is distinct from caller customer number data, a password, and PIN numbers. Examples of personal identification data may include a name, address, telephone number or initials." (Feb. 21, 2008 Claim Construction Order at 11.)

1 perform those functions must be ascertained. *Chicago Bd. Options Exchange, Inc. v.*  
2 *International Securities Exchange, LLC*, 677 F.3d 1361, 1367 (Fed. Cir. 2012).

3 Here, the parties agree that the recited function of the “means for processing” is  
4 “processing at least certain of said answer data signals relating to select ones of said individual  
5 callers.” Katz says that the corresponding structure is processing unit 92, central processing unit  
6 251, or processors PR1-PRn. Although DHL identifies different structures, for the purposes of  
7 this motion, DHL accepts Katz’s position.

8  
9 DHL points out that the specification describes how the different processors PR1-PRn are  
10 each dedicated to a particular format. DHL then says that its systems use a single processor that  
11 were not dedicated to any particular format or function and concludes that there can be no  
12 infringement. This Court rejects DHL’s argument because it once again attempts to incorrectly  
13 import additional functional limitations into the “means for processing.” The limitation says  
14 nothing about a “format” and there is nothing in the claim language that suggests that it cannot  
15 be satisfied by a single processor. Accordingly, this Court DENIES IN PART DHL’s summary  
16 judgment of non-infringement as it relates to claim 98 of the ‘863 patent and the “means for  
17 processing” limitation.  
18

19  
20 **5. Claim 19 of the ‘551 Patent**

21 Claim 19 of the ‘551 patent is dependent on claim 18 which is dependent on independent  
22 claim 14. Together the claims recite:

23 14. An analysis control system for use with a communication facility including  
24 remote terminals for individual callers, wherein each of the remote terminals  
25 comprises a telephonic capability including voice communication means and  
26 digital input means in the form of an array of alphabetic numeric buttons for  
27 providing data, the analysis control system comprising:

28 interface structure coupled to the communication facility to interface the terminals  
for voice and digital communication and including structure to provide signals  
representative of data developed by the terminals;



1 voice generator structure selectively coupled through the interface structure to the  
2 terminals for providing vocal operating instructions to individual callers;

3 **record memory connected to the interface structure for updating a file and**  
4 **storing data relating to certain individual callers;**

5 qualification structure to access the record memory to test key number data  
6 provided by the individual callers to ensure that the key number data is valid;

7 generator structure selectively coupled to the interface structure and the record  
8 memory for providing computer generated numbers to the individual callers and  
9 storing the computer generated numbers in the record memory; and

10 analysis structure connected to the record memory for processing at least certain  
11 of the data relating to certain individual callers subject to qualification by the  
12 qualification structure.

13 18. A control system according to claim 14, further including **means to control**  
14 **processing formats of the analysis structure in accordance with signals**  
15 **automatically provided by the communication facility indicative of one of a**  
16 **plurality of called numbers (DNIS).**

17 19. A control system according to claim 18, wherein the **data relating to certain**  
18 **individual callers includes calling number identification data for certain**  
19 **individual callers automatically provided by the communication facility.**

20 (emphasis added).

21 DHL argues that it does not infringe claim 19 of the ‘551 patent for three different  
22 reasons. This decision addresses each of these arguments in turn.

23 **a. DNIS**

24 Like claim 34 of the ‘120 patent, claim 19 of the ‘551 patent requires a system that  
25 receives signals “indicative of one of a plurality of called numbers (DNIS).” The parties agree  
26 that the accused systems received four or five digit numbers and that these numbers were  
27 translated into VDNs. But they disagree about whether these VDNs satisfy the DNIS limitation.  
28 For the reasons discussed above, this Court finds that they do not. Accordingly, this Court  
GRANTS IN PART DHL’s summary judgment of non-infringement as it relates to claim 98 of  
the ‘863 patent and the DNIS limitation.

**b. Means to Control Processing Formats**

Claim 19 also requires a “means to control processing formats.” This Court has previously interpreted the term “format” as follows:

Format refers to a call processing flow implemented by at least one computer program that sets forth the content and sequence of steps to gather information from and convey information to callers through pre-recorded prompts and messages. Selection of, or branching to, a module or subroutine within a computer program does not constitute selection of a separate format. Selection of (or branching to), a second computer program by a first computer program, that together implement a call process flow application also does not constitute selection of a separate format.

(Feb. 21, 2008 Claim Construction Order at 16.)

Katz says that both the Brite IVR system and Edify system included multiple call flows that corresponded to distinct formats. For example, Katz says that the Star Customer Service, Store-to-Door, international customer service and @Home customer service were distinct call flows running on the Brite IVR. Katz identifies the main customer service format, DHL Connect format and Dell Vanity call format as running on the Edify IVR system.

In its motion for summary judgment, DHL argues that a “processing format” must be implemented in its own computer program or programs, separate from other formats. Relying on this interpretation of the claim language, DHL says that in the call flow platform of the accused Brite and Edify IVRs, all modules and all call flows were managed within a single application. Therefore, DHL concludes that the accused systems did not have “separate formats.” Katz responds by saying that DHL is misinterpreting “processing format” to be simply a “computer program.” Quoting this Court’s earlier claim construction order, Katz argues that DHL’s interpretation has already been rejected.<sup>6</sup>

---

<sup>6</sup> The relevant part of that order says: “Finally, the defendants seek to rephrase the claim construction provided in Verizon in a manner that would suggest that “format” is simply a computer program. That is not the case. As the plaintiff correctly notes, a format is implemented by a computer program, but is not itself a computer program.” (Feb. 21, 2008 Claim Construction Order at 16.)

1 After reviewing the submissions, this Court rejects DHL's arguments. DHL's position is  
2 simply a variation of a position this Court previously rejected. The February 21 Claim  
3 Construction Order said that a format is not a computer program. It is equally clear that a format  
4 does not need to correspond to a distinct computer program or programs. Rather, a format  
5 corresponds to call flows regardless of whether those flows are implemented on distinct  
6 computer programs. In short, this Court does not interpret "processing format" to require that  
7 each different format be implemented by its own computer program(s). Accordingly, this Court  
8 DENIES IN PART DHL's summary judgment of non-infringement as it relates to claim 98 of  
9 the '863 patent and the "processing format" limitation.  
10

11 **c. Record Memory**

12 Independent claim 14 requires a "record memory connected to the interface structure for  
13 updating a file and storing data relating to certain individual callers." Dependent claim 19 goes  
14 on to limit the "data relating to certain individual callers" to include "calling number  
15 identification data for certain individual callers automatically provided by the communication  
16 facility." Katz says that these limitations are satisfied because both the Brite and Edify IVR  
17 systems received ANI (*i.e.* information identifying the calling number) and stored that  
18 information in a database. (Kelly Decl. at ¶¶ 262 and 263.)  
19

20 In its motion for summary judgment, DHL argues that "record memory" means "memory  
21 that receives data signals associated with a caller record, stores and maintains data associated  
22 with a caller record and updates a file associated with a caller record." (Zatkovich Decl. at ¶  
23 188.) Although the accused systems stored ANI, DHL argues that they only did so in connection  
24 with a particular call, not in connection with a particular caller's record. Accordingly, DHL asks  
25 this Court to find that there is no infringement.  
26  
27  
28

1 Relying on the claim language and the ordinary meaning of the term, Katz interprets the  
2 “record memory” to refer to memory that is 1) connected to the interface structure, and 2) can  
3 update a file and store data related to certain individual callers. (Kelly Decl. at ¶ 258.) Under that  
4 interpretation, Katz says that it has provided evidence that the accused systems satisfied the  
5 “record memory” limitation.  
6

7 This Court has not interpreted the term “record memory”. Moreover, the specification of  
8 the ‘551 patent does not even use this term. Consequently, DHL relies on how the specification  
9 uses the term “record,” as distinguished from the term “register,” to arrive at its claim  
10 interpretation.  
11

12 In accordance with one operating format, cells in the memory 98 (FIG. 4) are  
13 actuated to register the bidding number in identified relationship with several  
14 calls. Note that although a record may be desirable, it is not usually necessary to  
15 record all bids, particularly at initial bidding figures.

16 (‘551 patent at 15:2-7.)

17 DHL argues that this passage shows that “recording” data means something different  
18 from “registering.” Recording signifies a more permanent record than “registering” data.  
19 (Zatkovich Decl. at ¶ 188.) This Court does not find this passage or any of the other passages  
20 DHL identifies to be helpful. Accordingly, this Court has no choice but to rely on the ordinary  
21 meaning of the term as it is used by claim 19. This has several implications. First, there is no  
22 reason to interpret the term “updating” as modifying “data relating to certain individual callers.”  
23 The language of the claim clearly indicates that that “updating” modifies “file” and “storing”  
24 modifies “data relating to certain individual callers.” Second, the specification does not suggest  
25 that a record memory only stores information about a particular caller as opposed to a particular  
26 call. Thus, there is no need to interpret the term so narrowly. Finally, Katz suggests that the term  
27 should only require “capabilities.” This Court disagrees. The claim sets forth what the record  
28

1 memory “is for.” The language does not simply recite a capability. By using the “is for”  
2 language, the claim is clearly indicating how the record memory is actually used.

3         Based on the forgoing, this Court interprets “record memory” to refer to memory that is  
4 1) connected to the interface structure, and 2) updates a file and stores data related to certain  
5 individual callers. Under this definition, Katz has provided sufficient evidence for a jury to  
6 conclude that the accused systems contained a “record memory.” Accordingly, this Court  
7 DENIES IN PART DHL’s summary judgment of non-infringement as it relates to claim 98 of  
8 the ‘863 patent and “record memory” limitation.  
9

10         **IT IS SO ORDERED.**

11  
12 DATED: June 12, 2013



---

Honorable R. Gary Klausner  
United States District Judge

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

**UNITED STATES DISTRICT COURT  
CENTRAL DISTRICT OF CALIFORNIA**

In Re:  
  
Katz Interactive Call Processing Patent  
Litigation  
  
This document relates to:  
  
RONALD A. KATZ TECHNOLOGY  
LICENSING, L.P.,  
Plaintiff,  
v.  
AMERICAN INTERNATIONAL GROUP,  
INC. et al.,  
Defendants

Case No. MDL 2:07-ML-1816-B-RGK  
(FFM<sub>x</sub>)  
  
Case No. MDL 2:07-CV-2192-B-RGK  
(FFM<sub>x</sub>)  
  
ORDER GRANTING IN PART AND  
DENYING IN PART KATZ’S  
MOTION TO STRIKE PORTIONS OF  
DHL’S MOTION FOR SUMMARY  
JUDGMENT  
  
Docket Entry 560/7802

## I INTRODUCTION

After this Court issued rulings on both joint and individual summary judgment motions in this multidistrict patent litigation, the plaintiff, Ronald A. Katz Technology Licensing, L.P. (“Katz”) appealed. The Federal Circuit’s decision affirmed, vacated and reversed various rulings. *In re Katz*, 639 F.3d 1303 (Fed. Cir. 2011). Consequently, a few claims that this Court declared invalid were revived. Since some of this Court’s invalidity findings were issued prior to the round of individual summary judgment motions, the defendants never had an opportunity to raise their individual defenses to these claims. On September 7, 2011, this Court issued a Case Management Order governing the post-remand proceedings. (DE 7437). The order permitted the Group B defendants to file a second round of individual summary judgment motions so that they could address the revived claims. Accordingly, on June 15, 2012, defendants DHL Express (USA), Inc. and Sky Courier, Inc. (collectively “DHL”) filed their motion for summary judgment.

In response, Katz filed the current motion asking this Court to strike portions of the defendants’ summary judgment motion on the grounds that 1) the motion seeks to invalidate a claim that DHL previously addressed in its first individual summary judgment motion,<sup>1</sup> and 2) DHL supposedly presents new issues that were never disclosed in discovery.

## II LEGAL STANDARD

Expert reports are governed by Rule 26 of the Federal Rules of Civil Procedure. Rule 26(a)(2) provides that an expert “report must contain: (i) a complete statement of all opinions the witness will express and the basis and reasons for them; (ii) the data or other information considered by the witness in forming them; (iii) any exhibits that will be used to summarize or

---

<sup>1</sup> In this Court’s ruling on DHL’s individual summary judgment motion, this Court found that claim 61 was invalid as indefinite. That claim was, however, also revived by the Federal Circuit.

1 support them...” Fed. R. Civ. P. 26(a)(2) (emphasis added). Rule 26(a)(2) further provides that  
2 “a party must make these [expert] disclosures at the times and in the sequence that the court  
3 orders...” Fed. R. Civ. P. 26(a)(2)(d).

4 “If a party fails to provide information or identify a witness as required by Rule 26(a) or  
5 26(e), the party is not allowed to use that information or witness to supply evidence on a motion  
6 ... unless the failure was substantially justified or is harmless.” Fed. R. Civ. P. 37(c)(1)). In  
7 determining whether to preclude introduction of evidence pursuant to Federal Rule of Civil  
8 Procedure 37, courts consider (1) the surprise to the party against whom the evidence would be  
9 offered; (2) the ability of that party to cure the surprise; (3) the extent to which allowing the  
10 evidence would disrupt the trial; (4) the importance of the evidence, and (5) the nondisclosing  
11 party’s explanation for its failure to disclose the evidence. *Dey, L.P. v. Ivax Pharmaceuticals*  
12 *Inc.*, 233 F.R.D. 567, 571 (C.D. Cal. 2005) (citing *Southern States Rack & Fixture, Inc. v.*  
13 *Sherwin-Williams Co.*, 318 F.3d 592 (4th Cir. 2003)).

### 16 III 17 DECISION

18 Katz’s motion asks the Court to strike different portions of DHL’s summary judgment  
19 motion. This decision addresses each of these issues in turn.

#### 20 A. Invalidity Challenges to Claim 61 of the ‘285 Patent

21 Procedurally, the claims revived by the Federal Circuit fall into two categories. Some of  
22 the claims were found to be invalid when this Court ruled on the group summary judgment  
23 motions. These rulings were issued before the individual summary judgment motions were filed.  
24 Consequently, the defendants never had the opportunity to raise their individual defenses to these  
25 claims. Now that the Federal Circuit has revived these claims, this Court has given the  
26 defendants an opportunity to advance these defenses.  
27  
28



1 However, claim 61 does not fall into this category described above. Claim 61 survived  
2 the group summary judgment motions. Subsequently, DHL's first summary judgment motion  
3 argued that claim 61 was: 1) invalid in view of the prior art, 2) invalid as indefinite, and 3) not  
4 infringed. This Court rejected DHL's prior art defense and non-infringement defenses,<sup>2</sup> but  
5 found that claim 61 was indefinite for failing to recite an algorithm. *See Aristocrat Techs. Austl.*  
6 *PTY Ltd. v. Int'l Game Tech.*, 521F.3d 1328, 1333 (Fed. Cir. 2008). On appeal, the Federal  
7 Circuit disagreed with this Court's ruling and revived claim 61. Now DHL's second summary  
8 judgment motion seeks to raise three new invalidity arguments against claim 61. DHL argues  
9 that claim 61 is invalid because it is: 1) anticipated by the VCT '86 reference, 2) anticipated by  
10 the VCT '87 reference, and 3) obvious in view of a combination of Barger and either the VCT  
11 '86 or VCT '87 references.

12  
13  
14 DHL acknowledges that it had an opportunity to challenge claim 61 in its first summary  
15 judgment motion. But DHL argues that this Court should allow it to challenge claim 61 again  
16 because circumstances have changed. First, DHL points out that the USPTO Board of Patent  
17 Appeals and Interferences ("BPAI") has recently ruled that claim 54 of the '285 patent is  
18 obvious in light of Barger and VCT '86. Second, DHL argues that the intervening Federal  
19 Circuit opinion and new construction of the "means for processing" limitation have changed  
20 DHL's selection of prior art. Therefore, DHL says that it should be allowed to bring its best  
21 argument forward now, and not be forced into a needless trial.

22  
23 This Court rejects DHL's arguments. First, DHL's reliance on the Patent Office's new  
24 rejection of claim 54 is unpersuasive. As Katz points out, the Request for Reexamination arguing  
25 that the '285 patent's claim 54 is invalid over Barger and VCT '86 was filed in May 2006—  
26 several months before this lawsuit was filed in September 2006. Thus, DHL was aware of this

27  
28 <sup>2</sup> There is one exception. This Court did not address the non-infringement argument that related to "processing  
caller information" because of the indefiniteness ruling.

1 combination of references and knew that the Patent Office might reject claim 54 in view of them.  
2 But even if that were not the case, the fact that the Patent Office rejected a claim over new prior  
3 art does not help DHL. Prior to its first summary judgment motion, DHL had an opportunity to  
4 find and evaluate any prior art it wished to raise. That opportunity does not depend on what  
5 others, including the Patent Office, do. Accordingly, there is no reason to allow DHL to raise this  
6 new combination now.  
7

8 Second, DHL has failed to show that the Federal Circuit's new interpretation of the  
9 "means for processing" justifies a different prior art selection. DHL argues that it previously  
10 chose to rely on the Lotito reference, which discloses specific algorithms performed by its  
11 processors. Since the Federal Circuit's intervening decision does not interpret the "means for  
12 processing" to require any algorithms, DHL's second summary judgment motion can now rely  
13 on prior art references that do not disclose algorithms. But DHL concedes that it never argued  
14 that Lotito disclosed specific algorithms before. (DHL's Opp'n. to Mot. to Strike at 11, fn. 10) In  
15 fact, DHL's first summary judgment motion argued that the '285 patent does not disclose any  
16 algorithms at all for performing the recited function of the "means for processing." Therefore,  
17 there was no reason for DHL to select prior art that disclosed algorithms. In other words, the  
18 Federal Circuit's decision did not impact DHL's selection of prior art and it does not justify  
19 DHL's new selections. Accordingly, this Court GRANTS IN PART Katz's motion and  
20 STRIKES those portions of DHL's summary judgment motion and related filings that argue that  
21 claim 61 of the '285 patent is invalid.  
22  
23

#### 24 **B. Prieve's Opinions on the Means Plus Function Limitations**

25 Next, Katz argues that the Prieve's Declaration filed in conjunction with DHL's summary  
26 judgment motion presents a number of new opinions regarding the various means-plus-function  
27 limitations found in the asserted claims. In particular, Katz complains that Dr. Prieve provided  
28

1 new opinions that address the means-plus-function elements in claim 34 of the '120 patent and  
2 claim 61 of the '285 patent.

3 In response, DHL argues that even though "Dr. Prieve's expert report did not include a  
4 formal means-plus-function analysis for every term, his analysis was more than sufficient to give  
5 RAKTL notice." (DHL's Opp. to Mtn To Strike at 12.) Specifically, DHL says that Dr. Prieve's  
6 earlier report recited the court's claim construction and detailed where the structures in the claim  
7 are found in the prior art. But a cursory examination of different parts of Dr. Prieve's Report  
8 including the example DHL relied upon (Prieve Report at ¶ 2600) reveals that this argument has  
9 no support in the record. The Prieve Report never compared structures from the prior art with the  
10 means-plus-function structures for claim 33 of the '120 patent and claim 61 of the '285 patent.  
11 Nor did the report conclude that any prior art structures were the same as or equivalent to the  
12 structures at issue.  
13

14  
15 DHL also argues that Dr. Prieve's omission of a formal means-plus-function analysis was  
16 justified by Katz's earlier refusal to identify structures that corresponded to the recited functions  
17 of these limitations. As an initial matter, this Court notes that this argument contradicts DHL's  
18 earlier position and serves to confirm that Dr. Prieve's report did not contain any meaningful  
19 means-plus-function analysis. But even if DHL were characterizing Katz's conduct correctly,  
20 that conduct does not justify DHL's omissions. There is no reason why Dr. Prieve could not have  
21 included a means-plus-function analysis in his invalidity report. He could have easily identified  
22 the structures that he believed corresponded to the recited functions and discussed how the prior  
23 art compared to them. Therefore, this Court rejects DHL's excuse.  
24

25 Finally, DHL argues that Katz cannot show any prejudice. This Court disagrees. There  
26 have already been several rounds of summary judgment motions both before and after the  
27 appeal. These cases have been pending for over five years now. Of course, given the extreme  
28

1 number of patents and defendants involved, Katz could not have expected to have his day in  
2 court quickly. But that does not mean that there is no urgency. Particularly in the context of a  
3 complex multidistrict litigation, this Court “needs to have broad discretion to administer the  
4 proceeding.” *In re Katz*, 639 F.3d at 1313. If this Court allowed the numerous defendants to  
5 repeatedly supplement their contentions without any justification, these cases would never see  
6 trial. That would clearly prejudice Katz. Accordingly, this Court STRIKES those parts of DHL’s  
7 summary judgment motion and Dr. Prieve’s declaration that include new means-plus-function  
8 analysis.  
9

### 10 **C. Prieve’s Opinions on the ‘120 Patent Reexamination**

11 Katz also complains that Dr. Prieve’s new declaration discusses recent statements by the  
12 PTO examiner. The statements at issue relate to a March 2009 office action that the PTO issued  
13 as part of reexamination of claim 34 of the ‘120 patent. The office action rejected claim 34 of the  
14 ‘120 patent in view of a combination of the Calabrese and Student Registration references. Since  
15 Prieve’s expert report was dated May 2, 2008, well before the PTO’s office action, Prieve’s  
16 report could not have mentioned this office action. Katz points out that the request for  
17 reexamination and order granting reexamination both occurred prior to Prieve’s report. Since Dr.  
18 Prieve chose not to discuss those actions, Katz argues that he should not be able to discuss the  
19 more recent office action now.  
20

21 This Court disagrees. There is a significant difference between an office action and a  
22 request for reexamination or even an order granting reexamination. A request simply suggests  
23 that some party is asking for reexamination. It sheds no light on the merits of the argument. An  
24 order granting reexamination carries slightly more weight, but it is hardly persuasive. Although  
25 an office action rejecting a claim is also non-dispositive, at least it shows the current position of  
26 the PTO. Accordingly, DHL and Dr. Prieve might reasonably believe a discussion of an office  
27  
28

1 action would be persuasive while a discussion of a request for reexamination and an order  
2 granting reexamination is not.<sup>3</sup> Moreover, Dr. Prieve's expert report discussed the combination  
3 of Calabrese and Student Registration. Thus, Katz clearly has had the opportunity to respond to  
4 DHL's specific validity challenge. Accordingly, this Court DENIES Katz's motion to strike in so  
5 far as it seeks to strike Dr. Prieve's discussion of the recent PTO reexamination office action.  
6

#### 7 **D. Other New Prieve Opinions**

8 Katz's motion to strike also complains of "a huge number of other untimely new opinions  
9 that were not disclosed in Dr. Prieve's expert report." However, Katz only generally identifies  
10 these opinions by citing to an exhibit (Exhibit F to the Mead Declaration included a list of all the  
11 "new" portions of the Prieve's Declaration). Moreover, the motion to strike fails to describe the  
12 new argument's subject matter or explain how these arguments differ from Dr. Prieve's report.  
13 Neither does the motion suggest what specific prejudice Katz suffered. Accordingly, this Court  
14 DENIES that portion of Katz's motion to strike that relates to the unspecified new arguments.  
15 (Katz's Mtn to Strike at 14).  
16

#### 17 **E. New Non-Infringement Contentions**

18 Katz also says that DHL's second summary judgment has raised new non-infringement  
19 arguments for claim 61 of the '285 patent, claim 34 of the '120 patent, claim 98 of the '863  
20 patent and claim 19 of the '551 patent. Specifically, DHL argues that it did not infringe those  
21 claims because AT&T, not DHL, performed at least one claimed step from each claim at issue.  
22 Under *BMC Resources, Inc. v. Paymentech, L.P.*, 498 F.3d 1373 (Fed. Cir. 2007), there is only  
23 infringement if DHL controlled or directed AT&T. However, on August 31, 2012 the Federal  
24 Circuit issued an opinion overruling *BMC Resources*. See *Akamai Tech., Inc v. Limelight*  
25 *Networks, Inc.* (Fed. Cir. 2012) (*en banc*). This decision allows liability to be imposed even if all  
26  
27

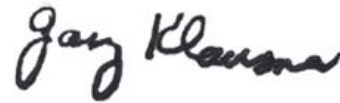
---

28 <sup>3</sup> This ruling should not be interpreted to address the admissibility of the reexamination office action.

1 the claimed steps are not performed by a single entity. Therefore, this portion of DHL's motion  
2 is now moot. Accordingly, there is no reason for this Court to determine whether DHL's  
3 arguments are truly new now. This Court will deal with the divided infringement defense when it  
4 rules on the merits of DHL's motion.  
5

6 **IT IS SO ORDERED.**

7 DATED: December 18, 2012



8 Honorable R. Gary Klausner  
9 United States District Judge  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

**UNITED STATES DISTRICT COURT  
CENTRAL DISTRICT OF CALIFORNIA**

In Re:

Katz Interactive Call Processing Patent  
Litigation

This document relates to:

07-cv-2134; 07-cv-2192; 07-cv-2196;  
07-cv-2299; 07-cv-2322; 07-cv-2325;  
07-cv-2339; 07-cv-2360

Case No. MDL 2:07-ML-1816-B-RGK  
(FFMx)

SUPPLEMENTAL CLAIM  
CONSTRUCTION ORDER

**I**  
**INTRODUCTION**

In its February, 2011 opinion, the Federal Circuit remanded several specific claim construction issues to this Court. On September 7, 2011, this Court directed the parties to confer and submit briefing on these claim construction issues. The parties have completed their briefing, and asked the Court to rule on claim construction issues related to U.S. Patent Nos. 6,292,547 (“the ‘547 patent”), 5,684,863 (“the ‘863 patent”), 5,815,551 (“the ‘551 patent”), 5,351,285 (“the ‘285 patent”), 5,255,309 (“the ‘309 patent”), 5,974,120 (“the ‘120 patent”), 6,335,965 (“the ‘965 patent”) and 5,589,762 (“the ‘762 patent”). This Court’s ruling follows.

**II**  
**CLAIM CONSTRUCTIONS**

**A. Means Plus Function Limitations**

This Court previously held that a number of Katz’s claims containing means plus function limitations governed by § 112, ¶ 6 were invalid as indefinite. A means plus function limitation is interpreted to encompass: 1) the recited function, and 2) the structures disclosed in the specification that correspond to that function and their equivalents. *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1332 (Fed Cir. 2006). In the case of the means plus functions limitations at issue, the corresponding specifications only disclosed a general purpose computer. In such cases, the Federal Circuit has held that “the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.” *WMS Gaming Inc. v. Int’l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). Relying on *Aristocrat Techs. Austl. PTY Ltd. v. Int’l Game Tech.*, 521F.3d 1328, 1333 (Fed. Cir. 2008), this Court said that when a specification fails to disclose the algorithm required by *WMS Gaming*, the claim is indefinite under 35 U.S.C. § 112 ¶ 2. Consequently, this Court found, *inter alia*, that a number of claims were invalid as indefinite.



1 Katz subsequently appealed many of this Court’s rulings. With respect to 35 U.S.C. § 112  
2 ¶ 2, the Federal Circuit found that this Court interpreted *WMS Gaming* and *Aristocrat*  
3 *Technologies* too broadly. *In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d  
4 1303, 1316 (Fed. Cir. 2011). The Federal Circuit said that an algorithm is not always required  
5 when the disclosed structure is a general purpose computer. Instead, the Federal Circuit said that  
6 the *WMS Gaming* rule applies only to those cases “involv[ing] specific functions that would need  
7 to be implemented by programming a general purpose computer to convert it into a specific  
8 special purpose computer capable of performing those specified functions.” *Id.* With this  
9 clarification in mind, the Federal Circuit vacated findings of indefiniteness with respect to seven  
10 claims -- claims 96, 98, and 99 of the ‘863 patent, claims 11 and 18 of the ‘547 patent, claim 19  
11 of the ‘551 patent, and claim 61 of the ‘285 patent. The claims recite the functions of  
12 “processing,” “receiving,” and “storing.”<sup>1</sup> The Federal Circuit instructed this Court to determine  
13 whether the recited “functions can be achieved by any general purpose processor without special  
14 programming.” *Id.* If so, the specifications do not need to disclose an algorithm. However, if this  
15 Court interpreted the claims more narrowly, the Federal Circuit suggested that the claims might  
16 still be indefinite. Katz has also asked that this Court reconsider its ruling with respect to claim  
17 42 of the ‘309 patent. Claim 42 was not directly addressed by the Federal Circuit decision, but it  
18 raises the same issue.

### 21 22 **1. The “Processing” Function, ‘547:11 and 18**

23 The relevant limitation of claims 11 and 18 of the ‘547 patent states, “analysis structure  
24 for receiving and processing said caller data signals under control of said record testing  
25 structure.” The recited function of this means plus function limitation is receiving and processing  
26 said caller data signals. The parties agree that “receiving” should be interpreted to have its plain  
27

---

28 <sup>1</sup> The term “storing” does not appear in the claim elements at issue on remand.

1 meaning. With respect to “processing,” Katz suggests that it should also carry its plain meaning.  
2 However, if it does not, Katz suggests that “processing” be defined to mean “manipulation of  
3 data which performs some operation or sequence of operations on data.” The defendants’  
4 proposal is substantially the same. This Court sees no reason to stray from these agreed upon  
5 definitions and interprets “receiving” and “processing” to have their plain meaning.  
6

7       However, in an attempt to revive their indefiniteness defense, the defendants argue that  
8 the receiving and processing terms should not be interpreted in isolation. Instead, they ask this  
9 Court to interpret the function of the “analysis structure” limitation more broadly. The  
10 defendants point out that the limitation requires that the analysis structure is under control of the  
11 record testing structure. Since the record testing structure is a means plus limitation implemented  
12 by a special purpose computer, the defendants conclude that the specification must disclose an  
13 algorithm to satisfy this “specialized function” or an “algorithm that shows how the general  
14 purpose computer is controlled by the special-purpose computer.” (Def. Resp. to Supp. Brief at  
15 3-4.)  
16

17       This Court rejects the defendants’ argument because it improperly conflates two different  
18 means plus function limitations. The only means plus function limitation at issue is the analysis  
19 structure. Although the limitation states that the analysis structure is under the control of the  
20 record testing structure, that is not the recited function of the analysis structure. The only recited  
21 function is “receiving and processing said caller data signals.” Therefore, the Court declines to  
22 adopt defendants’ claim construction.<sup>2</sup>  
23  
24  
25  
26

27 <sup>2</sup> Since this decision has interpreted the terms “receiving” and “processing” broadly, this Court does not need to also  
28 determine “whether a person of ordinary skill in the art would understand interface 20 to sufficiently disclose  
structure that performs the pertinent functions.” *In re Katz*, 639 F.2d at 1318. This is true for all the means plus  
function limitations this decision addresses.

1           **2. The “Processing” Function, ‘863:96, 98 and 99**

2           The relevant limitation of claims 96, 98 and 99 of the ‘863 patent states, “means for  
3 processing at least certain of said answer data signals relating to select ones of said individual  
4 callers.” Again, the parties do not dispute what the term “processing” means. Both parties agree  
5 that the terms should be given its plain meaning. Accordingly, this Court interprets the  
6 “processing” to have its plain meaning in the context of the ‘863 patent as well.  
7

8           By adding functions that are not required by *this* means plus function limitation, the  
9 defendants attempt to revive the indefiniteness defense here too. Specifically, defendants argue  
10 that the functions of the “means for processing” limitation include identifying different subgroup  
11 of callers and different sets of answer data signals. While the claims may contain these  
12 requirements; they are not the recited function of the means plus function limitation at issue.  
13 Therefore, the Court declines to adopt defendants’ claim construction.  
14

15           **3. The “Processing” Function, ‘551:19**

16           The relevant limitation of claim 19 states, “analysis structure connected to the record  
17 memory *for processing at least certain of the data relating to certain individual callers* subject  
18 to qualification by the qualification structure.” Again, based on the parties’ agreed upon  
19 definition, this Court interprets the “processing” to have its plain meaning in the context of the  
20 ‘551 patent.  
21

22           In an attempt to revive their indefiniteness defense, defendants argue that the “analysis  
23 structure” limitation has two recited functions: 1) storing a first group of data relating to certain  
24 individual callers, and 2) processing a second group of certain of data relating to certain  
25 individual callers. But, the storing function is not the recited function of the analysis structure  
26 limitation. Rather, “storing” is associated the record memory limitation that is not at issue on this  
27 remand. The recited function of the analysis structure limitation is processing certain data  
28

1 relating to certain individual callers. Therefore, the Court declines to adopt defendants' claim  
2 construction.

3 **4. The "Processing" Function, '285:16**

4 The relevant limitation of claim 16 states, "means for processing coupled to said  
5 forwarding means for processing caller information data entered by an operator at said live  
6 operator attended terminal." Based on the parties' agreed upon definition, this Court interprets  
7 the "processing" to have its plain meaning in the context of the '285 patent.

8 In another attempt to revive their indefiniteness defense, defendants try to identify  
9 additional functions associated with the "forwarding means" limitation. Specifically, defendants  
10 argue that the forwarding means must identify the order in which multiple caller information data  
11 entries are processed. However, that is not the recited function of the forwarding means.  
12 According to the limitation at issue, the forwarding means simply must process caller  
13 information data entered by an operator. Therefore, the Court declines to adopt defendants' claim  
14 construction.

15 **5. The "Processing" Function, '309:42**

16 Although claim 42 of the '309 patent was not at issue in the Federal Circuit appeal, this  
17 Court had previously found that the claim was invalid as indefinite under the *Aristocrat Techs.*  
18 analysis. Consequently, Katz has asked that the Court construe the "processing" means language.  
19 Based on the parties' agreed upon definition, this Court interprets the "processing" to have its  
20 plain meaning in the context of the '309 patent as well. Under this definition, there is no issue of  
21 indefiniteness.

22 **B. DNIS**

23 In the February 21, 2008, Claim Construction Order, this Court held that "DNIS" referred  
24 to signals or data "that identify the number called." Subsequently, this Court granted U.S. Bank's  
25

1 summary judgment motion and found that the accused systems did not infringe claims 43 and 49  
2 of the '863 patent and claims 19, 49 and 71 of the '285 patent. Those claims require that the  
3 interface structure or method include means or a step for receiving "dialed number identification  
4 service" ("DNIS") data signals.

5  
6 Katz appealed this non-infringement ruling. The Federal Circuit vacated this Court's  
7 summary judgment order as to these claims and directed this Court to provide further  
8 clarification on the meaning of "DNIS." Specifically, the Federal Circuit said it was unclear  
9 whether this Court's construction of the DNIS limitation requires "that the accused system use  
10 the full ten-digit called telephone number or merely some other representation that uniquely  
11 identifies the called number."<sup>3</sup> *In re Katz*, 639 F.2d at 1326.

12  
13 Not surprisingly, the parties now propose different language to clarify the meaning of  
14 DNIS. What is surprising is that the different proposals are not mutually exclusive. Katz argues  
15 that the Court should find that DNIS, "signals or data may be used in identifying a called number  
16 without use of the full ten-digit called telephone number." Defendants ask this Court to find that  
17 DNIS refers to "data or signals that *always uniquely* identify the number called" (emphasis  
18 added).

### 19 20 **1. 10 Digits**

21 Katz argues that the commonly understood meaning of "DNIS" demonstrates that the  
22 term is not limited to the full ten-digit number. Katz relies on an IBM patent (U.S. Patent No.  
23 5,103,449), a book entitled "The Inbound Telephone Call Center" (1990) and the VCT Quarterly  
24 Newsletter (Winter 1987) to show that DNIS does not necessarily refer to the actual telephone  
25 number. The IBM patent suggests that DNIS provides "up to the last seven digits of the called  
26 number" (U.S. Patent No. 5,103,449 at col. 1, ln. 19-22) and the VCT Quarterly mentions DNIS

27  
28 <sup>3</sup> Interestingly, the parties substantially agreed upon the meaning of DNIS and this Court simply adopted that definition.

1 codes which are associated with each of the many 800 service numbers.” Presumably, those  
2 codes are shorter than the full ten-digit number.

## 3 **2. Uniquely Identifying the Called Number**

4 The defendants do not challenge Katz’s clarification, but they insist that their proposal  
5 also accurately describes DNIS. The defendants ask that this Court find that DNIS data or signals  
6 *always uniquely* identify the number called. Except for the term “always,” the defendants are  
7 asking this Court to adopt the broader of the two choices the Federal Circuit inquired about –  
8 oddly, the choice that favors Katz. Katz, however, is suggesting that both Federal Circuit choices  
9 are wrong. Apparently, Katz would like to argue that an accused data or signal can be considered  
10 DNIS even though it does not uniquely identify the called number. However, this interpretation  
11 is inconsistent with both the Federal Circuit’s decision and this Court’s prior rulings. This Court  
12 has consistently said that DNIS must uniquely identify the called number. (Citizens’ SJ Order at  
13 9; April 21, 2011 Order Granting Macy’s Motion for Reconsideration).

14  
15  
16 Katz does raise one legitimate concern. The defendants’ clarification might foreclose  
17 infringement if the accused systems were not “100% operational and accurate.” There is no  
18 evidence to suggest that the claims should be interpreted to exclude that possibility. However,  
19 that problem can be avoided by omitting the term “always.” Accordingly, this Court clarifies its  
20 definition as follows. DNIS refers to signals or data that uniquely identify the number called.  
21 DNIS is not limited to the full ten-digit number.<sup>4</sup>  
22  
23  
24  
25  
26

---

27 <sup>4</sup> Notably, the Federal Circuit concluded that summary judgment in U.S. Bank’s favor on the DNIS issue was  
28 improper under the broader construction of the term DNIS. *In re Katz*, 639 F.3d at 1326. Since this Court has  
adopted this broader interpretation, there is no need to revisit U.S. Bank’s non-infringement argument.



1 vacated this Court's invalidity finding with instruction to construe the term "operating system  
2 format."

3       The parties have briefed this question. Katz argues that the term "operating system  
4 format" has the same meaning as format. Defendants' proposal is significantly more  
5 complicated. They provide the following proposal which includes an initial definition and three  
6 clarifications:  
7

8       "operating system format" means "the general arrangement and organization of a set of  
9 call flow processing operations and linking steps implemented by at least one program."

10       Clarification 1: For example, an "operating process format" sets forth the content and  
11 linking steps of a call processing flow that gathers information from and conveys  
12 information to callers through pre-recorded prompts and messages. Selection of, or  
13 branching to, a module or subroutine within a computer program does not constitute  
14 selection of a separate "operating process format." Selection of (or branching to), a  
second computer program by a first computer program, that together implement a call  
process flow application also does not constitute selection of a separate "operating  
process format."

15       Clarification 2: Where a call flow processing operation is available to a caller from an  
16 "operating process format" as a result of caller-entered input and a linking step, then the  
17 call flow processing operation and the linking step are part of the same "operating  
process format."

18       Clarification 3: Further, where a first call flow processing operation in an "operating  
19 process format" is available to caller from a second call flow processing operation as a  
20 result of caller entered input and a linking step from the second call flow processing  
operation, then the first call flow processing operation, the second call flow operation,  
and the linking step are part of the "operating process format."

21       As threshold matter, this Court notes that parties have always treated the terms "format"  
22 and "operating system format" to have precisely the same meaning. For example, during the  
23 claim construction briefings, the defendants repeatedly used the term "operating format"  
24 interchangeably with "format." (Defendants' MDL-B Claim Construction Brief at 8-12, DE  
25 733.)  
26

27       Nonetheless, the defendants now argue that "operating system format" has a narrower  
28 meaning than "format." The defendants point out that there is presumption that these terms have



1 a different meaning. But the weight of the evidence rebuts any such presumption. The term  
2 “operating system format” is not even found in the ‘120 patent specification. But Katz has  
3 identified numerous instances in the specifications and file histories of the related patents where  
4 different variations of “format” are all used to simply mean format. (*See, e.g.*, ‘551 patent at  
5 3:32-34, 5:63-9:42 and 14:1-15:62.) Claims from different patents also use the terms “format”  
6 and “processing format” interchangeably.<sup>6</sup>

7  
8 Moreover, defendants’ arguments are unconvincing. Defendants’ convoluted argument  
9 explaining how the ‘120 patent specification defines “operating process format” makes no sense  
10 when the specification does not even use that phrase. The dictionary definitions of the term,  
11 “format,” that defendants rely upon are also helpful. As the Federal Circuit has noted “[t]here is  
12 no guarantee that a term is used in the same way in a treatise [or dictionary] as it would be by the  
13 patentee.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1322 (Fed, Cir 2005)(*en banc*). That is  
14 particularly true here where the patents use the term “format” quite idiosyncratically.<sup>7</sup>  
15 Consequently, this Court finds that the term “operating system format” has the same meaning as  
16 “format.”  
17

#### 18 19 **D. Acknowledgment Number**

20 This Court originally construed the term “acknowledgment number” in the ‘965 and ‘762  
21 patents to mean “a number used by a caller to verify or acknowledge a transaction to the  
22 system.” On appeal, the Federal Circuit expressed concern about this definition because:

23 The construction does not specify how the caller uses the number to acknowledge a  
24 transaction to the system. One reasonable reading of the court’s construction is that the  
25 caller enters the number to the system. Another is that the caller listens to the number and  
then confirms that it is correct. A third possible reading is that the caller simply listens to

26  
27 <sup>6</sup> Claim 11 of the ‘150 patent states: “selecting a processing format of said multiple port, multiple format processing  
system ... as the selected format”; Claim 71 of the ‘285 patent states: “selecting ... a select processing format from  
said plurality of formats.”

28 <sup>7</sup> This Court is not rejecting the use of dictionaries generally.

1 the number and does not need to provide any confirmation to the system, *i.e.*, the  
2 transaction is “to the system,” but the acknowledgement is not. *In re Katz*, 639 F.3d at  
1323.

3 Although this Court later held, “there is nothing within the specification or the term itself  
4 that requires an acknowledgment number to be provided to the system,” the Federal Circuit went  
5 on to provide a slightly different definition: “a number that can be used by a caller to identify a  
6 transaction.” *Id.* at 1324. Since the Federal Circuit’s holding technically applied only to the ‘965  
7 patent, Katz asks this Court to find that is equally applicable to the ‘762 patent.<sup>8</sup>

8  
9 In response, the defendants argue that this Court should retain its earlier definition for the  
10 ‘762 patent. They are apparently concerned that the new Federal Circuit definition improperly  
11 expands the scope of the ‘762 patent’s claims. This Court notes that the new Federal Circuit  
12 definition is only marginally different from the previous definition this Court provided. But even  
13 if this were not the case, there is no reason for this Court to address the merits of defendants’  
14 arguments. There is no basis for providing a different definition of acknowledgment number in  
15 the context of the ‘965 patent as opposed to the ‘762 patent. The Federal Circuit has provided  
16 that single definition and this Court is bound to follow that ruling. Therefore, this Court finds  
17 that in the context of the ‘762 patent, the term “acknowledgment number” is a number that can  
18 be used by a caller to identify a transaction.  
19

20  
21 **IT IS SO ORDERED.**

22  
23 DATED: April 26, 2012



24 Honorable R. Gary Klausner  
25 United States District Judge

26  
27  
28 <sup>8</sup> The claims from the ‘965 patent are no longer at issue because the Federal Circuit affirmed this Court’s invalidity findings with respect to those claims.

Edwin V. Woodsome, Jr. (No. 56305)  
 Christopher S. Ruhland (No. 175054)  
 DECHERT LLP  
 US Bank Tower  
 633 West 5th Street  
 37th Floor  
 Los Angeles, CA 90071-2013  
 Telephone: 213-808-5700  
 Facsimile: 213-808-5760  
 Email: christopher.ruhland@dechert.com

Stephen Dartt (No. 247552)  
 DECHERT LLP  
 300 West 6th Street, Suite 2010  
 Austin, TX 78701  
 Telephone: 512-394-3000  
 Facsimile: 512-394-3001  
 Email: stephen.dartt@dechert.com

Daniel B. Epstein (No. 240793)  
 DECHERT LLP  
 2440 W El Camino Real, Suite 700  
 Mountain View, CA 94040-1499  
 Telephone: 650-813-4800  
 Facsimile: 650-813-4848  
 Email: daniel.epstein@dechert.com

*Attorneys for Defendants  
 DHL Express (USA), Inc., and Sky Courier, Inc.*

UNITED STATES DISTRICT COURT  
 CENTRAL DISTRICT OF CALIFORNIA – WESTERN DIVISION

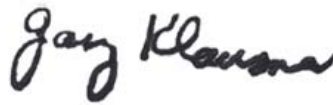
IN RE KATZ INTERACTIVE CALL PROCESSING PATENT LITIGATION	Case No. 07-ML-1816-C-RGK (FFM <sub>x</sub> ) (Related to Case No.07-CV-2192-RGK- FFM <sub>x</sub> )
RONALD A. KATZ TECHNOLOGY LICENSING, L.P.,  Plaintiff,  v.  AMERICAN INTERNATIONAL GROUP, INC., et al.,  Defendants.	Hon. R. Gary Klausner  [Proposed] JUDGEMENT  Ctrm: 850

1 For the reasons stated in the Court's Order Granting In Part And Denying In  
2 Part DHL Defendants' Second Individual Motion For Summary Judgment dated  
3 June 12, 2013 [MDL Dkt. No. 8245, DHL Dkt. No. 605],

4 IT IS ORDERED AND ADJUDGED:

5 that Plaintiff Ronald A. Katz Licensing, L.P., shall take nothing from  
6 Defendants DHL Express (USA), Inc. and Sky Courier, Inc. (collectively "DHL  
7 Defendants"), that judgment for DHL Defendants is granted, and that DHL  
8 Defendants shall recover their costs of suit.

9  
10 Dated: June 25, 2013



11 \_\_\_\_\_  
HON. R. GARY KLAUSNER

12  
13  
14 14974398  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28

UNITED STATES DISTRICT COURT  
CENTRAL DISTRICT OF CALIFORNIA

**CIVIL MINUTES - GENERAL**

Case No.	07-ML-01816-RGK (FFMx)	Date	September 7, 2011
Title	IN RE KATZ INTERACTIVE CALL PROCESSING PATENT LITIGATION		

Relates to ALL GROUP B ACTIONS: 07-CV-2134-RGK (FFMx), 07-CV-2192-RGK (FFMx), 07-CV-2196-RGK (FFMx), 07-CV-2299-RGK (FFMx), 07-CV-2322-RGK (FFMx), 07-CV-2325-RGK (FFMx), 07-CV-2160-RGK (FFMx) and  
ALL GROUP C ACTIONS 07-CV-4955, 07-CV-4958-RGK (FFMx), 07-CV-4960-RGK (FFMx), 07-CV-4964-RGK (FFMx), 07-CV-4965-RGK (FFMx), 07-CV-6222-RGK (FFMx)

Present: The Honorable	R. GARY KLAUSNER, UNITED STATES DISTRICT JUDGE		
R. Neal for Sharon L. Williams	Not Reported	N/A	
Deputy Clerk	Court Reporter / Recorder	Tape No.	
Lead Attorneys Present for Plaintiffs:	Lead Attorneys Present for Defendants:		
None	None		
Proceedings:	(In Chambers) Case Management Order (DE 7414, 7415)		

1. In view of the Federal Circuit recent opinion, Katz has indicated that it wishes to add or substitute additional claims against some of the remaining defendants. This Court has previously given Katz the opportunity to add claims, but Katz chose not to do so. It is now too late for Katz to add or substitute claims. Discovery has closed long ago. Moreover, the Federal Circuit Opinion specifically affirmed this court's rulings preventing Katz from litigating new claims after this court's summary judgment decisions. There is no reason why the Federal Circuit's decision should be treated any differently. Katz cannot have a claim selection "do over" simply because some of its arguments it has been advancing went better than expected on appeal and others did not. Accordingly, all the briefing discussed below shall only address claims currently asserted against the remaining defendants.

2. The Court hereby orders that the parties brief the court on claim construction issues identified in the Federal Circuit opinion.

A. No later than 7 days after the date this order is entered, the parties shall meet and confer to identify the claim terms to be construed and the claims in which those terms appear.

B. No later than 14 days after the date this order is entered, the parties shall exchange proposed claim constructions (if any) and supporting evidence. The parties shall meet and confer regarding their proposed claim constructions within 7 days after exchange of proposed claim constructions.

C. No later than 14 days after exchange of proposed claim constructions, Katz shall file an opening Supplemental Claim Construction Brief of up to 30 pages in the main MDL case;

D. No later than 21 days after service of Katz's opening brief, any Group B or Group C defendants that wish to address the issues may jointly file a Response of up to 30 pages.

E. No later than 7 days after service of Defendants' brief, Katz may file a Reply of up to 15 pages.

3. The Federal Circuit reversed one of this Court's non-infringement rulings in the American Airlines case. However, the opinion noted that this Court explicitly did not consider American Airlines's assertion that Katz's infringement theory regarding the SABRE database was brought too late. Accordingly, the Federal Circuit suggested that this Court could consider that argument on remand. This Court will permit American Airlines to file such a motion on the following schedule.

A. No later than 14 days after the date this Order is entered American Airlines may file an opening brief in the American Airlines case. The brief shall be no longer than 15 pages;

B. No later than 14 days after service of American Airlines' opening brief, Katz may file a response. The response shall be no longer than 15 pages; and

C. No later than 7 days after service of Katz's response, American Airlines may file a reply brief. The reply brief shall be no longer than 10 pages.

4. In reversing part of this Court's invalidity ruling, the Federal Circuit found that specific claims from the asserted patents were not invalid under 35 U.S.C. § 112. To the extent that the Federal Circuit decision impacts the validity of any other claims asserted against the remaining defendants, Katz may file a motion for reconsideration of this Court's previous decisions.

A. No later than 14 days after the date this order is entered, Katz may file a motion to reconsider this Court's prior invalidity findings. The motion will be limited to claims that are directly affected by the Federal Circuit's validity analysis under § 112, and that are currently asserted against the remaining defendants.

B. No later than 14 days after the date of Katz's opening brief, any Group B or Group C defendants that wish to address the issues may jointly file a response.

C. No later than 7 days after service of the defendants' response, Katz may file a reply brief.

5. Defendants did not have an opportunity to file individual summary judgment motions on those claims that the Federal Circuit has revived. In addition, this Court did not consider some common summary judgment issues with respect to these claims because the issues appeared to be moot. The defendants now seek permission to address these issues. Moreover, to the extent that the Court reconsiders any claims pursuant to ¶ 4 of this order, the defendants seek the same opportunity.

A. No later than 21 days after the date this Court's ruling on Katz's motion for reconsideration (pursuant to ¶ 4 of this order) is entered, any defendant may file an individual motion for summary judgment. In addition, the defendants may jointly file a common motion for summary judgment on validity issues that were previously raised but not ruled upon by reason of mootness. Such motions will be limited to claims revived by the Federal Circuit or this Court. If Katz does not file motion for reconsideration, defendants' motions will be filed no later than 30 days after the date this order is entered.

B. No later than 21 days after the defendants' motion for summary judgment, Katz shall file its response.

C. No later than 7 days after Katz's response, the defendants will file any reply briefs.

6. In view of both this Court's rulings on various damages issues and the Federal Circuit decision in the *Uniloc* case, Katz proposes that the parties exchange supplemental damages expert reports. This Court sees no need for additional expert discovery. Katz bears the risk of failing to identify alternative damages theories.

7. Given that the Federal Circuit affirmed all of this Court's prior art based invalidity rulings, EchoStar and Teligence ask the Court to permit another round of prior art summary judgment motions. This Court has already given the defendants ample opportunity to raise prior art based summary judgment motions. Accordingly, this Court will not schedule another round of such motions.

**IT IS SO ORDERED.**

\_\_\_\_\_  
Initials of  
Preparer  
slw  
\_\_\_\_\_

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000029

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. :5,351,285

Page 1 of 6

DATED :September 27, 1994

INVENTOR(S) :Ronald A. Katz

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 1, line 8, change "Telephone" to --Telephonic--;

Column 9, line 10, change "XYS" to --XYZ--;

Column 11, line 44, change "calling" to --called--;

Column 13, line 2, after "16" insert --,--;

Column 14, line 24, change "area-code" to --area code--;

Column 17, line 9, after "formats" insert --,--;

Column 19, line 6, delete "substantially all of said";

Column 19, line 6, after "certain" insert --of said--;

Column 20, lines 6 and 7, delete "and (3) a plurality of  
live operator attended terminals,";

Column 21, line 49, delete "utilizing" and insert  
--including--;

Column 21, line 59, after "communication" insert  
--system--;

...



Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000030

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. 5,351,285

Page 2 of 6

DATED September 27, 1994

INVENTOR(S) Ronald A. Katz

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 22, line 6, after "communication" insert

--system--;

Column 24, line 17, before "format" delete "each  
operating" and insert --said pay to dial--;

Column 25, line 16, delete "and a plurality of live  
operator attended terminals";

Column 26, lines 2 and 3, delete "with respect to pay to  
dial formats";

Column 26, line 4, delete "including equipment data";

Column 26, line 30, after "said" insert --plurality of  
formats includes a--;

Column 26, line 30, delete "formats comprises" and  
insert --format such as--;

...

JA0000406

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000031

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. 5,351,285  
DATED September 27, 1994  
INVENTOR(S) Ronald A. Katz

Page 3 of 6

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 26, line 60 and on, insert the following claims:

--68. An interface control system according to claim 1, wherein at least one of said formats is accessible by a plurality of different called numbers.--

--69. An interface control system according to claim 68, wherein said plurality of called numbers include at least one 800 number and at least one pay to dial number.--

--70. An interface control system according to claim 69, wherein said pay to dial number is a 900 number.--

--71. A method for interfacing a telephonic communication system according to claim 19, wherein at least one of said formats is accessible by a plurality of different called numbers.--

...

JA0000407

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000032

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,351,285

Page 4 of 6

DATED : September 27, 1994

INVENTOR(S) : Ronald A. Katz

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

--72. A method for interfacing a telephonic communication system according to claim 71, wherein said plurality of called numbers include at least one pay to dial number and at least one 800 number.--

--73. A method for interfacing a telephonic communication system according to claim 72, wherein said pay to dial number is a 900 number.--

--74. A method for interfacing a telephonic communication system according to claim 48, wherein said testing step includes testing for a specified number of uses during a specified interval.--

--75. A method for interfacing a telephonic communication system according to claim 62, wherein said use history conditions include a one time only use limitation.--

...

JA0000408

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000033

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,351,285

Page 5 of 6

DATED : September 27, 1994

INVENTOR(S) : Ronald A. Katz

It is certified that error appears in the above-indentified patent and that said Letters Patent is hereby corrected as shown below:

--76. An interface control system according to claim 65, wherein said call data signals indicate equipment data.--

--77. An interface control system according to claim 65, wherein at least one of said plurality of formats has at least one imposed condition for said remote terminals calling to interface said interface control system.--

--78. A method for interfacing a telephonic communication system according to claim 67, wherein said billing provision data is based on a record word for said pay to dial format which imposes the terms of said caller billing data.--

...

JA0000409

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000034

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. 5,351,285

Page 6 of 6

DATED September 27, 1994

INVENTOR(S) Ronald A. Katz

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

--79. A method for interfacing a telephonic  
communication system according to claim 78, further  
comprising the step of:

selectively extracting said billing provision  
data.--

Signed and Sealed this  
Twentieth Day of June, 1995

Attest:



BRUCE LEHMAN

Attesting Officer

Commissioner of Patents and Trademarks

JA0000410



US005351285A

**United States Patent** [19]**Katz**[11] **Patent Number:** **5,351,285**[45] **Date of Patent:** **Sep. 27, 1994**[54] **MULTIPLE FORMAT TELEPHONIC  
INTERFACE CONTROL SYSTEM**[75] **Inventor:** **Ronald A. Katz**, Los Angeles, Calif.[73] **Assignee:** **First Data Resources Inc.**, Omaha,  
Nebr.[21] **Appl. No.:** **47,241**[22] **Filed:** **Apr. 13, 1993****Related U.S. Application Data**

[63] Continuation of Ser. No. 509,691, Apr. 16, 1990, abandoned, and a continuation-in-part of Ser. No. 640,337, Jan. 11, 1991, which is a continuation of Ser. No. 335,923, Apr. 10, 1989, which is a continuation of Ser. No. 194,258, May 16, 1988, Pat. No. 4,845,739, which is a continuation-in-part of Ser. No. 18,244, Feb. 24, 1987, Pat. No. 4,792,968, which is a continuation-in-part of Ser. No. 753,299, Jul. 10, 1985, abandoned, said Ser. No. 509,691, is a continuation-in-part of Ser. No. 260,104, Oct. 20, 1988, Pat. No. 4,930,150, which is a continuation-in-part of Ser. No. 18,244, Feb. 24, 1987, Pat. No. 4,792,968, which is a continuation-in-part of Ser. No. 753,299, Jul. 10, 1985, abandoned.

[51] **Int. Cl.<sup>5</sup>** ..... **H04M 11/00**[52] **U.S. Cl.** ..... **379/94; 379/95;**  
379/97; 379/88; 379/142[58] **Field of Search** ..... 379/94, 97, 96, 98,  
379/93, 142, 95, 88, 91, 92[56] **References Cited****U.S. PATENT DOCUMENTS**

4,320,256 3/1982 Freeman .  
4,757,267 7/1988 Riskin ..... 379/97  
4,785,408 11/1988 Britton et al. .... 379/97  
4,797,911 1/1989 Szlam et al. .  
4,812,843 3/1989 Champion et al. .  
5,001,710 3/1991 Gawrys et al. .... 379/94  
5,017,917 5/1991 Fisher et al. .... 379/95

5,097,528 3/1992 Gursahaney et al. .... 379/142

**FOREIGN PATENT DOCUMENTS**

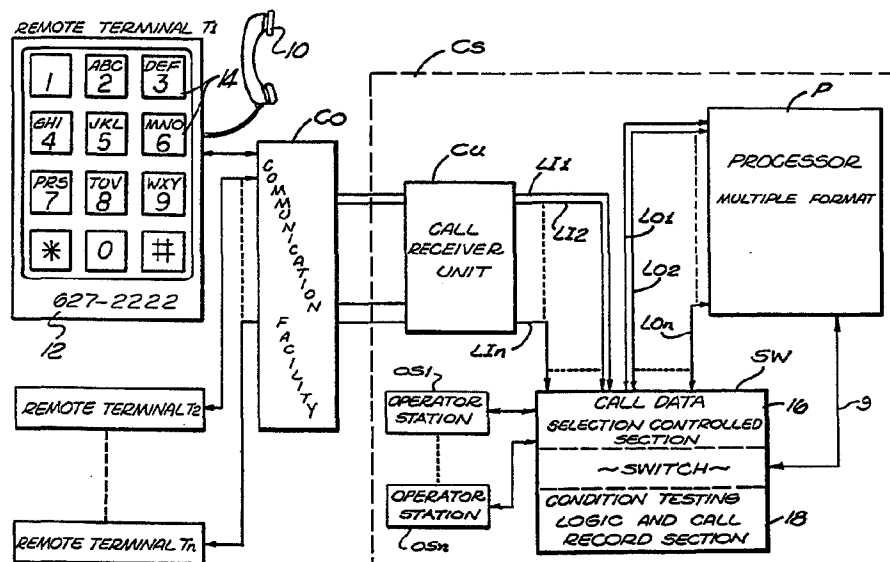
0342295 11/1989 European Pat. Off. .... H04M 11/00

**OTHER PUBLICATIONS**

Conversant 1 Voice System: Architecture and Applications, by Robert J. Perdue and Eugene L. Rissanen, ATT Technical Journal, Sep./Oct., 1986, vol. 65, No. 5. The AT&T Multi-Mode Voice Systems-Full Spectrum Solutions for Speech Processing Applications, by S. D. Hester, et al., from the Proceedings of the 1985 AVIOS Conference, Sep., 1985.

**Primary Examiner**—Curtis Kuntz**Assistant Examiner**—Stella L. Woo[57] **ABSTRACT**

Call data signals actuated by a telephone terminal are provided from a telephone communication system to indicate call data as the called number, the calling number and the calling equipment. The call data signals address related control functions for selectively interfacing a live operator terminal or a multiple format multiple port data processing system. The interface connection involves providing a specific format as for automated processing or to prompt an operator. Screening tests and format selection are performed to make a determination. Individual telephone terminals and individual data formats are arranged and interfaced under controlled conditions specified by the call data. Time tests, history tests and demographic tests may be executed in addition to basic selection and qualification tests. Control may be executed from active data storage for assembled control words and record words. Record words for individual calls may be stored along with developed data.

**67 Claims, 5 Drawing Sheets**



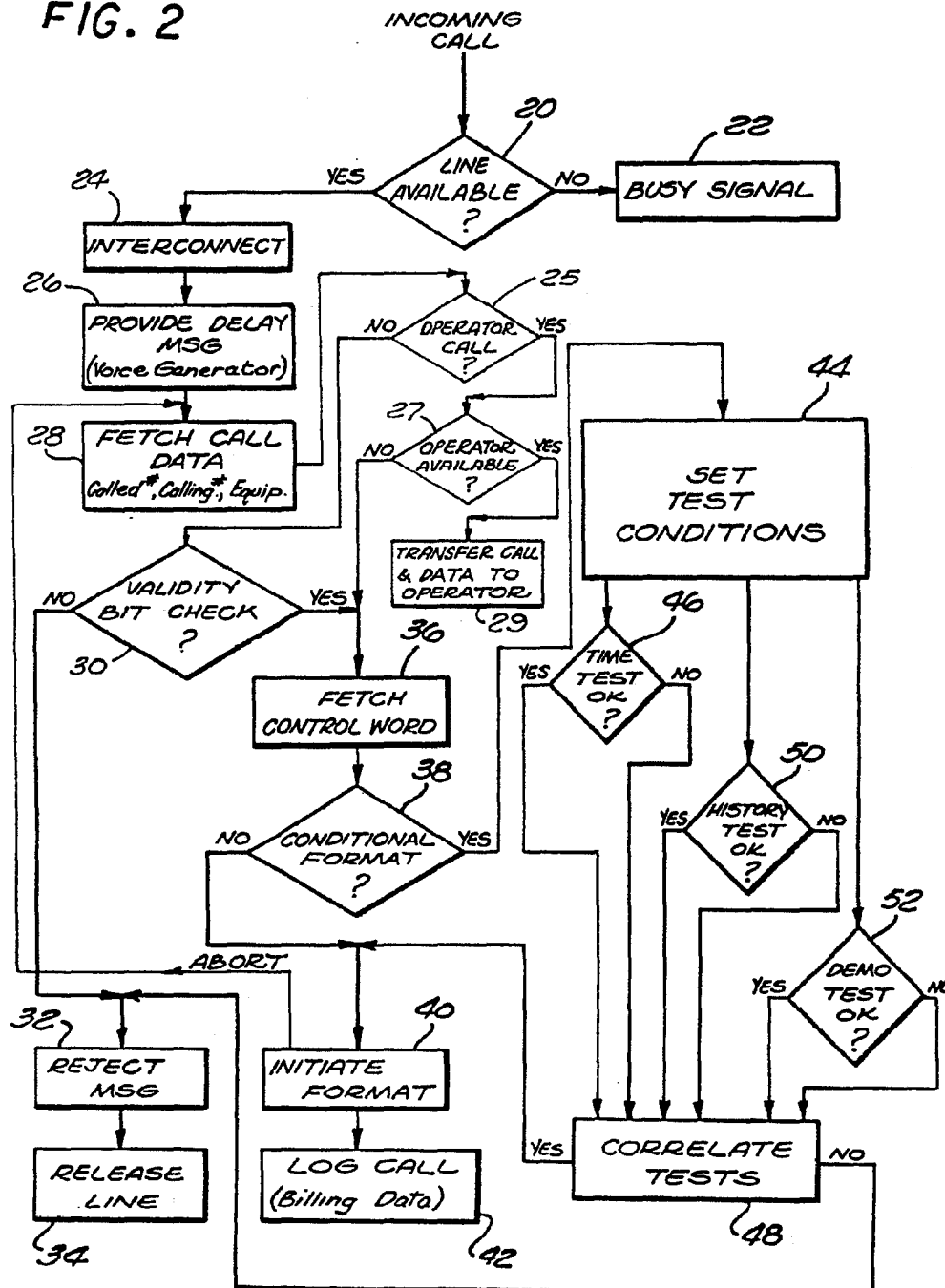
U.S. Patent

Sep. 27, 1994

Sheet 2 of 5

5,351,285

FIG. 2





U.S. Patent

Sep. 27, 1994

Sheet 3 of 5

5,351,285

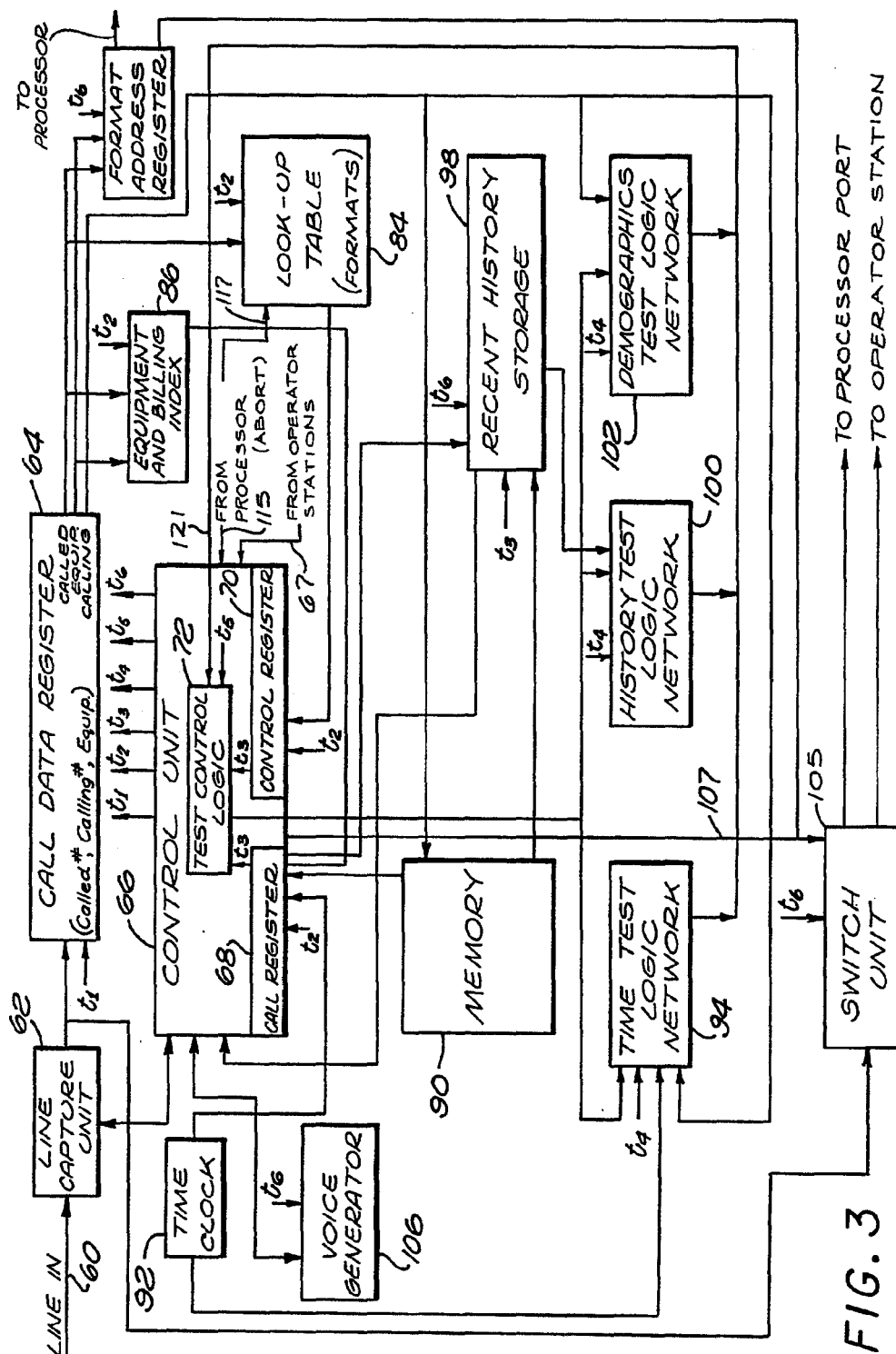


FIG. 3

U.S. Patent

Sep. 27, 1994

Sheet 4 of 5

5,351,285

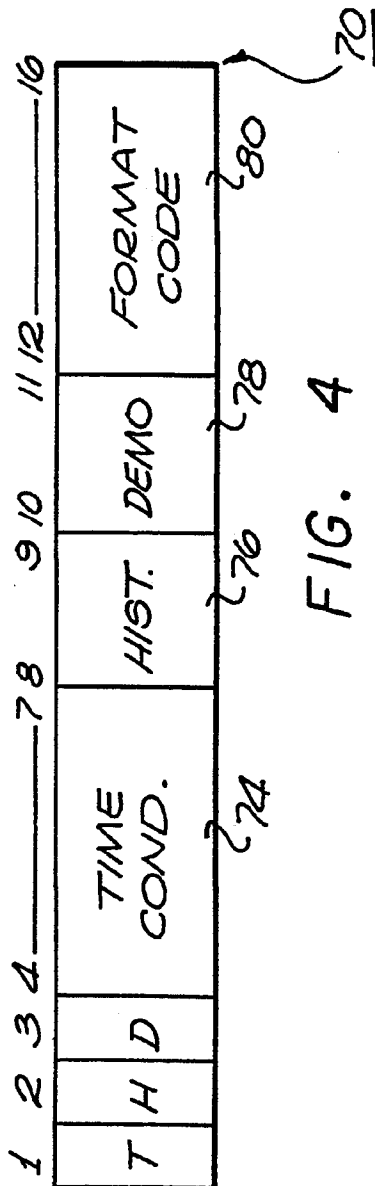
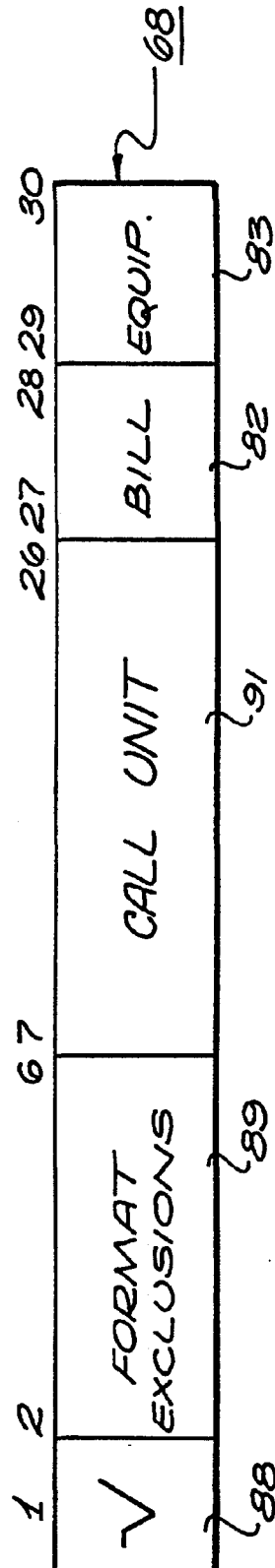


FIG. 5



U.S. Patent

Sep. 27, 1994

Sheet 5 of 5

5,351,285

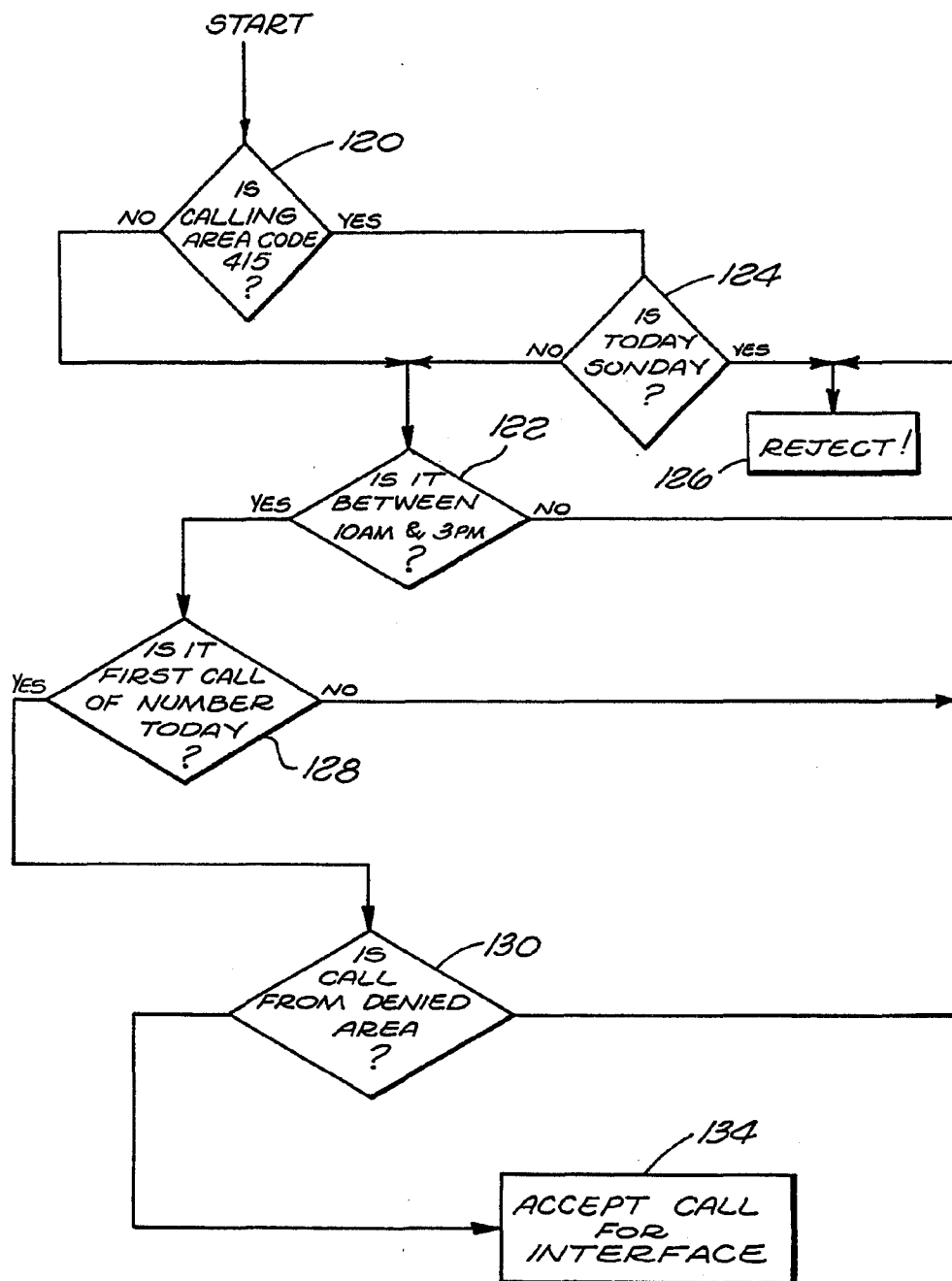


FIG. 6

5,351,285

1

**MULTIPLE FORMAT TELEPHONIC INTERFACE  
CONTROL SYSTEM****RELATED SUBJECT MATTER**

This is a continuation of application Ser. No. 07/509,691 filed Apr. 16, 1990 and entitled "Telephone Interface Control System", now abandoned, which is a continuation-in-part of application Ser. No. 260,104 filed Oct. 20, 1988 and entitled "Telephonic Interface Control System", now U.S. Pat. No. 4,930,150 which is a continuation-in-part of application Ser. No. 018,244 filed Feb. 24, 1987 and entitled "Statistical Analysis System For Use With Public Communication Facility", now U.S. Pat. No. 4,792,968, which was a continuation-in-part of application Ser. No. 753,299 filed Jul. 10, 1985 and entitled "Statistical Analysis System For Use With Public Communication Facility", now abandoned. Also, this application is a continuation-in-part of application Ser. No. 07/640,337 filed Jan. 11, 1991, and entitled "Telephonic-Interface Statistical Analysis System", which is a continuation of application Ser. No. 07/335,923 filed Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System", which is a continuation of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 018,244 filed Feb. 24, 1987 and entitled "Statistical Analysis System For Use With Public Communication Facility", now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 753,299 filed Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility", now abandoned. The benefit of the earlier filing dates in the United States is claimed under 35 U.S.C. §120.

**BACKGROUND AND SUMMARY OF THE  
INVENTION**

Over the past several years, substantial expansion has occurred in the technology of combining telephonic and computer systems. For example, telephone systems have been developed to readily transmit digital data. Various forms of modems are in widespread use to intercouple telephones and computers. However, at a more personal level, it also has been proposed to utilize the traditional dialing buttons of telephone instruments to provide digital data, as for various processing. In accordance with such arrangements, voice messages prompt callers to provide data by actuating the alphanumeric buttons of conventional telephones. These systems have been proposed in association with computers to provide various services and one such system is disclosed in U.S. Pat. No. 4,792,968, issued Dec. 20, 1988, to Ronald A. Katz from an application Ser. No. 018,244 filed Feb. 24, 1987.

With respect to telephonic-computer systems, attaining the interface format desired by an individual caller is sometimes complex and burdensome. Specifically, callers may be misdirected, screening may be ineffective and delays may be cumbersome. Also, records may be poor or non-existent. Furthermore, some situations exist where interface to a live operator is an important alternative. As a consequence, a need exists for an improved interface system for selectively interfacing a considerable number of individual callers with a multiple format processor, as to attain efficient and economical digital

2

and vocal exchanges along with prompting and data accumulation.

In general, the present invention comprises a telephonic-computer interface system accommodating digital and vocal (analog) telephonic communication and capable of handling a large number of calls to selectively interface prompted live-operator stations or formats in a computer processor. The selected interface is controlled, as by call (called number, calling number, etc.) and can be altered under control of an operator, developed data or operating conditions. Accordingly, the system of the present invention interfaces: (1) a telephonic communication facility including remote terminals for individual callers, e.g. conventional telephone instruments including voice communication means, and digital input means in the form of alphanumeric buttons for providing data and (2) either a prompted live-operator station or a multiple port, multiple format data processor for concurrently processing data from a substantial number of callers with respect to any of several formats.

The interface system incorporates a controller for receiving calls from remote terminals for association with ports in the telephonic computer apparatus, and which receives signal-represented call data (representing "calling" and "called" telephone numbers) along with equipment information. An index apparatus is controlled, as by the signal-represented call data, to select initially a live-operator or machine format of the processor so as to specify any conditions for the interface, at least one of the formats including at least one condition. A test apparatus may determine whether or not an individual call attains specified conditions and thereby controls switching structure for providing the actual interface. If a live-operator terminal is selected, or indicated as a secondary format, prompt data is provided to a select station. Data is recorded and processing procedures also may be controlled by call data.

**BRIEF DESCRIPTION OF THE DRAWINGS**

In the drawings, which constitute a part of this specification, an exemplary embodiment exhibiting various objectives and features hereof is set forth, specifically:

FIG. 1 is a block diagram of a system constructed in accordance with the present invention;

FIG. 2 is a flow diagram illustrating the operating process of the system of FIG. 1;

FIG. 3 is a block diagram of a component portion of the system of FIG. 1;

FIG. 4 is a diagrammatic representation of a binary control word as registered and utilized in the system of FIG. 1;

FIG. 5 is a diagrammatic representation of a binary data record word as utilized and recorded in the system of FIG. 1; and

FIG. 6 is a flow diagram illustrating the operating process of the structure represented in FIG. 5.

**DESCRIPTION OF THE ILLUSTRATIVE  
EMBODIMENT**

As required, a detailed illustrative embodiment of the present invention is disclosed herein. However, physical communication systems, data formats, and operating structures in accordance with the present invention may be embodied in a wide variety of forms, some of which may be quite different from those of the disclosed embodiment. Consequently, the specific structural and functional details disclosed herein are merely represen-

5,351,285

3

tative; yet in that regard, they are deemed to afford the best embodiment for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote terminals T1-Tn (telephone instruments) are represented (left). The terminals T1-Tn are generally similar and accordingly only the terminal T1 is shown in any detail. The indicated terminals T1-Tn represent the multitude of telephone terminals existing in association with a communication facility CO which may comprise a comprehensive public telephone network.

The communication facility CO, along with the individual terminals T1-Tn, is coupled to a central processing station CS generally indicated by a dashed-line block. Generally with regard to the station CS, individual terminals T1-Tn are interfaced either with a processor P (upper right) or one of several live-operator stations OS1-OSn (lower left) through a call receiver unit CU and a switch SW. Essentially, the processor P and the switch SW cooperate (line 9) to control interfaces, with the processor P providing interface formats either (or both) to automate an interface or prompt a live operator at a station OS1-OSn. Note that the interface formats are stored as described below in the processor P.

In accordance herewith, individual telephone calls are preliminarily processed on the basis of signal-represented call data to identify a specific operating format for a station or the processor P. The preliminary processing may invoke screening tests to impose conditions or establish a test criteria for the switch SW to determine the acceptability of the call to interface with a specific operating format.

Calls are selectively processed according to a specific operating format as indicated by call data. At any instant of time, the collective interface may involve several thousand calls simultaneously being processed through ports of the processor P. Exemplary selected formats of the processor might include: public polls, lotteries, auctions, promotions, sales operations and games. Accordingly, the stations OS1-OSn may comprise a substantial number and the processor P may take the form of a sizable computer capable of simultaneously processing many calls involving several different formats. Although numerous possible configurations are available, for purposes of explanation, the processor P is illustrated simply as a block with multiple ports. Note that while the switch SW and the processor P may be integrated in a single system, they are separately illustrated to isolate the detailed structure and process of the present invention.

Input lines LI1 through LI n from the call receiver unit CU enter the switch SW to provide calling data and communication paths. Output lines LO1 through LO n function between the switch SW and the processor P as lines LS1-LS n operate to serve the stations OS1-OSn. Note that various multiplexing techniques are well known in the telephonic art to communicate call data and may be employed in the system.

Considering the system somewhat summarily, individual calls originating at the terminals T1-Tn are coupled through the communication facility CO and the call receiver unit CU to the switch SW. Call data, representative of calls, actuates the switch SW to preliminarily process each call based on the desired format. For example, depending on the desired format (indicated by the called number and/or the equipment data signals)

4

calls are selectively coupled and processed. Furthermore, record data is assembled for storage.

Considering the system of FIG. 1 in somewhat greater detail, the exemplary telephone terminal T1 includes a handpiece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in a conventional configuration. Of course, the handpiece 10 accommodates analog signals while the panel 12 is a digital apparatus. Generally, the handpiece 10 serves to manifest analog or voice signals to a caller.

In accordance with conventional telephone structure, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry three letters along with a decimal digit. Specifically, the button designated with the numeral "2" also carries the letters "A", "B" and "C". Thus, the buttons 14 encompass the numerals "0-9" two symbols, and the alphabet except for the letters "Q" and "Z". Consequently, the buttons 14 substantially accommodate the entry of decimal and alphabetic data.

At this stage, some specific aspects of the communication facility CO are noteworthy. Essentially, with telephonic dialing, the communication facility CO couples selective terminals (from the multitude of terminals T1-Tn) to the call receiver unit CU. In that regard, the unit CU at the central station CS may be reached by any of a plurality of called numbers. For example, the call unit CU might be reached by any of twenty telephone dialing numbers, each associated with a specific operating format of the processor P. One called number or set of numbers might be associated with an auction format of the processor P. Another number or set of numbers might be associated with sales operating formats. Still another called number or set of numbers might identify a game format, and so on.

Incoming calls to the call receiver unit CU are identified by call data in accordance with telephone system techniques. As described below, the call data may specifically include digital signals representative of the called number (DNIS), the calling number (ANI) (terminal number), and the terminal equipment.

In addition to attaining a preliminary interface with a selected format, individual calls may be screened based on the called number (identifying an operating format) and the calling number (caller identification) or the equipment. That is, the system of the present invention is based on a realization that signal-represented call data can be effectively utilized to selectively interface individual callers at remote terminals with specific operating formats of a data processor.

Considering the call data in somewhat greater detail, in accordance with current telephone systems, the communication facility CO may provide signal-represented call data for: the "called" number, the "calling" number, and the equipment involved, e.g. "pulse" or "tone" terminal. Specifically, operating telephone equipment termed "DNIS" automatically provides the called telephone number in digital form from the communication facility CO. Somewhat similarly, existing telephonic equipment designated "ANI" automatically indicates the caller's (calling) number in digital signal represented form. Generally, time shared lines carry such call data and also may provide call data indicating equipment. Thus, the call unit CU may receive the called number, the calling number, and a calling equipment designation (pulse or tone), collectively termed call data, which data is utilized to establish control functions, as for

5,351,285

5

example to select an operating format for a station OS-1-OSn or the processor P.

As described in detail below, call data is registered in the switch SW to perform distinct control operations. Specifically, a selection section 16 of the switch SW identifies a specific desired format for the stations OS-1-OSn or the processor P. Depending on the format, a testing section 18 of the switch SW may screen calls for interface connections.

Recognizing that the possibilities are great, formats for calls in accordance with the disclosed embodiment may be of three different classes. Specifically, call formats may specify any of the following operations:

1. couple to live operator station if possible or in accordance with a predetermined criteria; if no operator station available, couple to processor;
2. interface to processor;
3. either above format, but selectively re-couple to live operator station or processor depending on secondary conditions.

The ramifications of individual formats within the above classes may vary considerably; however, some examples will illustrate possibilities. A marketing format (class 1) might interface callers to a live operator if an operator is available. Upon receiving a call, the operator station OS1-OSn (FIG. 1) also receives and displays prompting format data for the attending operator. If an operator is not available (all stations OS1-OSn busy) the system provides an interface with the processor P and a format as to record the data for a return call by an operator. Alternatively, the processor completes the transaction with data provided by the caller that may be digital, digital and voice, or voice.

In a game format, say of class 2, a caller may be limited to interface the processor P. The interface may be contingent on initial test conditions, e.g. call data, caller record, time, etc.

Formats of class 3 involve a switch between live operator and processor depending on secondary conditions. For example, a polling format may switch from the processor P to an operator station OS1-OSn if the caller fails to provide digital data in a responsive form. Alternatively, an operator may command a switch to the processor P upon identifying a specific caller from whom data is to be taken.

In the illustrative system of FIG. 1, an operating process is executed as illustrated in FIG. 2. Each incoming call prompts a preliminary query as indicated by a block 20 concerning the availability of a line or port. In the absence of an available line, a busy signal is provided as indicated by the block 22. Alternatively, an available line results in a preliminary interconnect as indicated by a block 24 setting a conditional connection into operation.

As indicated by a block 26, during the screening or testing interval (typically measured in seconds or fractions of seconds) the caller remains on line and may receive a message. That is, the caller might hear silence or may continue to hear the traditional telephonic ringing sound. Alternatively, the caller might be given a brief vocal message to "stand by" as indicated by the block 26. In any event, the caller is held "on line" while the process continues.

With a call on a line, the communication facility CO (FIG. 1) provides signal-represented call data, e.g. the called number, the calling number, and the equipment designation. As indicated by block 28 (FIG. 2) signals representative of the call data are captured to perform

6

preliminary control and processing operations as will now be considered. Note that the selected formats will fall within one of the classes as stated above.

The initial test is illustrated by a query block 25 representing an operation to distinguish calls of class 1 (operator) and class 2 (processor). Calls for a format seeking an operator prompt a "yes" response from the block 25 and proceed to the test of a block 27, "is an operator available?". A "yes" determination advances the process to an operation indicated by a block 29. Specifically, the block 29 represents the operations of coupling a caller to an operator station and transferring the appropriate format data to the station for prompting the operator. If no operator is available (block 27) the process proceeds with automated control to attain an interface in accordance with an appropriate format. Specifically, a control word is fetched (block 36) to establish an operating format for interfacing the call. In that regard, the specified format may be very simple. For example, the call simply may be prompted to indicate identification for a return call. Alternatively, the format may incorporate conditions or other complications as explained below.

Returning to the query block 25, if the call is to be coupled to the processor, an initial test operation is indicated by a block 30. A validity test is performed, for example, a list of calling numbers may be compiled that are to be denied access to any interface with the processor P. Negative calling numbers may result either by the choice of the person responsible for the calling number terminal, or by the choice of the service operating the processor P (FIG. 1). For example, an accumulation of prior improper transactions from a terminal designated by a specific telephone number may provide a basis for complete disqualification. Equipment also may disqualify.

Recognizing that various circumstances may be involved with respect to the total disqualification of a calling terminal, in accordance herewith the test involves formulation of a validity bit as indicated by the query block 30. Acceptable calls set the validity bit at a binary "1".

If the calling terminal is invalid, ("no" from the block 30) the call is rejected as indicated by the block 32 with or without a message and the line is released as indicated by the block 34. Note that the time interval involved is very short and the rejection message may take various forms including a verbal comment, a busy signal or simply a disconnected signal.

If a positive validity bit ("1") is formed at the junction of the query block 30, a control word is fetched under command of the called number as indicated by the block 36. As described in detail below, a control word is available for each operating format of the processor P and is utilized to impose the conditions for an interface and the terms of any associated billing.

As indicated in FIG. 2, the fetched control word of the block 36 prompts an inquiry as to the conditions attendant the selected operating format as indicated by a query block 38. That is, in the process, the query of block 38 determines whether further conditions are imposed for attaining interface with the processor P. If no further conditions are imposed, the format is initiated by pursuing the connected interface as indicated by a block 40. Also, as indicated by a block 42, the call is logged or recorded as with respect to billing data for example.

5,351,285

7

If access to a format involves conditions ("yes" from the query block 38), tests are specified as illustrated by a block 44. That is, conditions for the interface are specified by the block 44. Of course, the specific tests may involve various criteria; however, in the illustrative embodiment, the conditions involve time, history and demographics. Each exemplary condition will now be considered somewhat preliminarily.

In the disclosed embodiment, time tests involve testing the time of the call against certain limitations. For example, it may be desirable to limit some formats to specific time intervals as in relation to a television broadcast, a real time auction and so on. Note that the time tests also may be related to specific terminal control and geographic areas treated on the basis of telephone area codes. Specific examples will illustrate.

Assume an operating game format that propounds questions to a caller based on knowledge of a particular television program. The program may be broadcast at different times in different geographic areas, and as a consequence it may be desirable to limit calls interfacing the processor format depending on the area code of calling numbers. Accordingly, time tests may involve solely the instant time, or various combinations of time and call data. The specific test is determined as indicated by a block 46 (FIG. 2) imposing detailed operating instructions for the format. The test results are then correlated as represented by a block 48.

As indicated above, in accordance with the described embodiment, another test involves a record as for example directed to the station identified by the calling number. As an example, the record might take the form of either a negative or a positive file (for an individual format). In that regard, all formats involving "pay to dial" (e.g. 976, 900 etc.) calls might be conditioned as a group. Generally, in the case of a negative file, certain numbers are recorded that are to be denied access to a particular operating format. In the case of a positive file, access to the operating format is available only to calling numbers listed in the file.

Considering exemplary implementations of the system, a negative file may be based on limited or restricted use (as in the case of a lottery) or prohibitive use (telephone terminal owner choice). Formats accessible on a "one-time only" basis also may be controlled by negative lists. Thus, an operating format may be inaccessible to a terminal, or may be accessible a specified number of times during a specified interval, e.g. three accesses per week. The historical test is symbolized in FIG. 2 by the query block 50 to conditionally actuate the related tests as indicated in the block 48. History limitations also may involve purely format limits. For example, a give-away or dial-free format may be limited to some predetermined number of calls for a period, e.g. ten thousand calls per day. Thus, limits can be imposed on the economic exposure of a format.

Moving from the historic considerations, demographic tests may be specified as in relation to the geographic area manifest by the area code of the calling number. To consider a specific example, a public opinion poll may be conducted in which a particular geographic balance is defined. In such an operating format, calls may be accepted only until particular quotas are attained with respect to specified area codes. Such tests in the process are indicated by the query block 52, again to instruct the correlation block 48.

With the requisite tests established by selection of a format, the block 48 indicates resolving the acceptabil-

8

ity of the call for the selected interface format. If the call is accepted, the process moves to initiate the selected format interface as indicated by the block 40. Conversely, if the call is to be rejected, the process moves to the step indicated by block 32, i.e. reject the call as with a message and release the line.

If a call is accepted, as represented by the block 40, there is a possibility that an established format may be aborted in favor of a different format. For example, interfacing the processor P, a qualified caller may fail to communicate digitally with the result that transfer to a live operator is commanded. Also, in certain situations, a connection to a live operator is to be terminated in favor of an interface to the processor. In either event, an existing format is terminated in favor of a fresh format. That phase of the process is illustrated by an "abort" line from the block 40 returning to the block 28. Thus, the process returns to re-assign the caller to a new format in accordance with fresh data. Thus, transfers according to class 3 operation are implemented along with the other classes of operation by the switch SW (FIG. 1).

An exemplary detailed structure of the switch SW (FIG. 1) for executing the process of FIG. 2 is represented in FIG. 3. In that regard, individual telephone calls are manifest from the call receiver unit CU (FIG. 1) comprising existing equipment as well known in the prior art. The call data is supplied through a line 60, upper left, FIG. 3. Note that the represented single line 60 is merely symbolic of a channel to carry call data and provide direct telephone communication.

Generally, the system of FIG. 3 illustrates elements of the switch SW of FIG. 1 for processing an individual call. As indicated above, the system of the present invention involves the simultaneous processing of many calls with the possibility that numerous calls are simultaneously being tested for a connection as explained above. Consequently, although the system of FIG. 3 is illustrated with respect to testing a single call, it is to be understood that sequential or parallel operations and multiplexing techniques, as well known and widely practiced in the computer field, are utilized to accomplish multiple processing operations as are described below with reference to FIG. 3.

The line 60 (FIG. 3, upper left) enters a line capture unit 62 through which signal-represented call data is supplied to a call data register 64. Accordingly, the call data is registered to be available for processing operations as explained generally with reference to FIG. 2.

The line capture unit 62 also is connected to a control unit 66. Structurally, the control unit 66 may take the form of various computer facilities incorporating memory and logic capability to sequence and control specific functions as explained below. Generally, the control unit 66 implements specific formats which may involve coupling a caller either to a live operator station OS1-OSn or to the processor P. In that regard, the control unit 66 provides a series of timing signals t1-t6 to sequence the operations of individual component blocks as illustrated. Note that to preserve clarity in FIG. 1, connections of timing signals t1-t6 are not illustrated. Also, the control unit 66 is connected to the operator stations OS1-OSn (line 67) to receive signals indicative of the availability of stations.

In addition to logic for controlled switching as described, the control unit 66 specifically includes a call register 68, a control register 70 and test control logic 72. The control register 70 receives format control

5,351,285

9

words specified, as by the called number and having a form as illustrated in FIG. 4.

Recapitulating, each of the operating formats has a control word for defining any access conditions or limitations to accomplish a specific format, e.g. connection to an operator station OS1-OSn or to the processor P (FIG. 1). The formats may vary considerably; however, a few examples are the following:

Class 1, connect the live operator if available and provide prompt data for the XYZ Company telemarketing program, if operator not available, cue caller: "All operators are busy at the moment, but we will return your call as soon as possible. Please touch your telephone buttons '2' and '4' to identify yourself as twenty-four for the return call".

Class 2, couple qualified callers to computer P for polling interface.

Class 3, couple callers to computer P for the RST Company telemarketing program, however, transfer to live operator (and prompt) if caller is not responsive.

These formats are established by control words that are selected on the basis of call data. The control words are sixteen bits, illustrated as the first sixteen bits (1-16) registered as shown in FIG. 4. An additional group of registered bits (17-20) are provided from call data.

The initial three registered bits in the control register (FIG. 4) serve as test command bits respectively for a time test, a history test and a demographics test. The presence of a "1" bit in any of the first three bit locations specifies the requirement for testing compliance to specified conditions. A "0" bit indicates no test.

The bits "4 through 7" in the control register constitute a field 74 and specify time conditions in relation to the instant time of the call. The field 74 may specify eight distinct time conditions. For example, exemplary specified conditions for a format might be as follows:

Accept calls between 7:00 and 18:00,  
Accept calls on Thursday between 9:00 and 10:00,  
Accept calls from area code 213 on Wednesday between 15:00 and 16:00,  
Accept calls from area code 602 on Wednesday between 16:00 and 17:00.

Essentially, the time condition field 74 (activated by the time bit "1" - first bit position) defines specific intervals during which calls will be accepted for the specific called number and may be further limited by the area codes. A wide range of possibilities are available to accommodate specific programs for individual formats.

A field 76 in the control register embraces bits "8" and "9" and defines the conditions for access to the format based on historical considerations. Thus, two bits are provided to indicate four possible historical limitations. Again, the test is specified by a "1" bit, in this instance in the second bit location of the register 70. The following limitations are exemplary of many possibilities as related to a single telephone number:

Accept one call per day (per caller),  
Accept one call per week (per caller),  
Accept one call per month (per caller),  
Accept one call during any three-day period (per caller),  
Accept only 10,000 calls (per format).

Continuing with respect to the contents of the register 70, as illustrated in FIG. 4, bits "10" and "11" constitute a field 78 specifying demographic test limitations. Again, a few examples will illustrate the various possibilities:

10

Accept calls only from area code 213,  
Accept calls from area codes 213, 818 and 619,  
Accept only 1,000 calls from area code 213,  
Accept calls from area code 213 with the prefix numerals 619.

Again, the demographic test is imposed only upon the existence of a "1" bit, in this instance in the third bit of the control word. As in the other cases, specific possibilities are considerable.

The bits "12" through "16" of the control word constitute a field 80 and designate a selection code for the identified format. These five bits enable a substantial number of formats to be designated and coded with respect to various classifications. For example, calls of the class 1 specifying a desirable connection to a live operator station OS1-OSn might be encoded in a "000" decimal series, e.g. "001" indicates XYZ Company telemarketing program, "034" indicates RST Company program, and so on. Accordingly, a "0" in the most significant digit specifies a live operator format. Similarly, lottery formats might be encoded in a "100" decimal series, e.g. "101, 102, 103 . . . 110, 111, 112" . . . and so on; auctions might be designated in a "200" series, e.g.: "201, 202, . . .". By using decimal equivalent coding formats for various categories, exclusions may be concisely stated. For example, a calling number may be excluded from all lottery operating formats simply by the specification of decimal "100" in association with the calling number.

The data, as illustrated in FIG. 4 is loaded into the control register 70. Again, the first sixteen bits comprise the format control word and are provided from a look-up table 84 (FIG. 3, right, central) upon being addressed by call data from the register 64.

The last bits (bits 17-20) stored in the control register 70 are provided from an equipment and billing instruction index 86. That is, in response to the signal-represented call data indicating the called number and the equipment, the look-up table 84 and the index 86 supply data for loading the control register as indicated above.

While the control register 70 is loaded to specify the operation of the system, the call register 68 in the control unit 66 receives signals for additional control and to formulate a record of the call. Specifically, as represented in FIG. 5, the contents of the call register 68 includes an initial validity bit 88 for indicating that the called number is either on a positive list or is not on a negative list. The determination of the validity bit for location 88 is made by reference to a memory 90 (FIG. 3, central) addressed by the calling number.

While the calling number addresses data to indicate a validity bit, specific format exclusions also may be indicated as explained above with respect to certain formats. For example, certain classifications of formats or specific formats (as a lottery) may be identified as inaccessible for certain telephone terminals as identified by calling numbers. Other than lottery formats, certain discretionary formats also may initiate control to limit access. Accordingly, a field 89 in the call register 68 (FIG. 5, bits "2" through "6") is provided from the memory 90, addressed by the calling number to specify format exclusions. That is, the calling number addresses the memory 90 to load the field 89 and specify limitations. Consider a few examples of format exclusions or limitations for a calling number:

No lottery formats,  
One lottery format per week,



5,351,285

11

Two lottery formats per month of total cost under \$25.00,

No auction sales,

Auction sales only with caller entered code I.D. 763.

Again, it will be apparent that many possibilities exist in applying various coding techniques, the above merely being exemplary. Also, as indicated above, a format may be void of any limitations or restrictions. In that event, as explained above, a connection or interface is promptly commanded by the format code.

The bits "7" through "26" stored in the call register 68 (FIG. 5) constitute a field 91 and indicate the time of a call. Signals representative of the instant time of a call to load the field 90 are provided from a time clock 92 (FIG. 3, upper left). Signals from the time clock 92 may be in a Julian code and are provided to the call register 68 and also to a time test logic network 94 (lower left).

The last bits (27-30) in the register 68 are provided from the call data. The bits "27" and "28" indicate format billing data and comprise a field 82. Again, representations are coded; however, with respect to the field 82 information is derived from the called number. For example, an "800" called number may indicate no billing with the representative code being stored in the field 82. As another possibility, a "976" prefix number, or "900" number, may indicate a specific charge in relation to the identified format.

The bits "29" and "30" comprise a field 83 and may actuate a special form of the selected format. In the disclosed embodiment, the field 83 registers call data, as to indicate that the calling terminal is a "pulse" (rotary dial) signal unit or a "tone" (touch) signal unit. In the instance of a rotary terminal, the format program may be modified to accommodate "pulse" signal operation or inject operator communication with a transfer to one of the stations OS1-OSn.

Recapitulating to some extent with regard to the composition of the call record word in the register 68 (FIG. 5), the memory 90 (FIG. 3) is addressed by calling number data to provide data for the validity bit location 88 and the format-exclusion field 89. The time of call is stored in the field 91 from the clock 92. The billing and equipment data are provided by the index 86 in response to "calling" data signals.

Another element of memory, specifically, a recent activity storage 98 (FIG. 3, lower right) is separately illustrated for convenience of explanation. Essentially, the storage 98 receives words from the call register 63 to maintain a record of interface calls. The recent activity storage may periodically be purged to permanent storage if desired. Thus, the recent activity storage 98 accumulates an activity record of all interface participants with respect to specific formats and is utilized in the history test for determining that an instant calling terminal is within the specified historical limitations as provided from the memory 90.

The activity tests are performed by a history test logic network 100 (FIG. 3, lower central). In a related context, the demographics test as explained in detail above is performed by a demographics test logic network 102. The results of the test logic networks are communicated to the test logic 72 in the control unit 66. As a consequence, a switch unit 105 is actuated to either operatively couple the line 60 into a port of the processor P (FIG. 1) or reject the call. If a call is accepted for an interface, a signal is supplied from the test control logic 72 through a line 107 to the switch 105 during the interval of the timing signal T6. The signal in the line

12

107 also is supplied to a format address register 109 for addressing the processor P. The register 109 stores select data signals to address a specific operating format of the processor P.

Recapitulating to some extent, call data indicates an interface format of the processor P (FIG. 1) with associated limitations, conditions and billing provisions. Call data also indicates possible format limitations or conditions for a calling number. The system processes the data with respect to the conditions and limitations to selectively enable interface operations. Essentially, the call data specifies a format (processor or operator) and any conditions relating to the format. Representative data accordingly is provided from the look-up table 84 and the memory 90 to the control register 70 and the call register 68 respectfully. Preliminary conditions may or may not be involved; however, qualified calls for an operator involve tests of availability within the control unit 66 according to data received from the stations OS1-OSn (line 67). As a result, calls are either interfaced to an operator who receives a format prompt, or interfaced to the processor according to a specified format. Thereafter, a shift may command a redetermination and a transfer as described in detail below.

In view of the above structural and logic description of the system of FIG. 3, the process as described with respect to FIG. 2 and the stored control word forms as described with respect to FIGS. 4 and 5, a comprehensive understanding of the described embodiment may now best be accomplished by assuming an exemplary call and treating the individual responsive steps. Accordingly, assume the occurrence of a call as manifest on the line 60 (FIG. 3, upper left). Further, assume that the called number, "976 513 7777" designates a lottery format with limited access. Details of the limited access will be treated below.

Upon occurrence of the call, the line capture unit 62 seizes a line relationship and signals the control unit 66. Immediately, an interval of time signal t1 is initiated and the register 64 is loaded with the called number ("900 513 7777"), the calling number ("415 318 4444") and the equipment designation (tone or no tone). To the caller, the operations as now described involve an almost imperceptible delay.

During the following interval of timing signal t2, the call register 68 and the control register 70 are loaded as illustrated respectively in FIGS. 4 and 5. Specifically, the called number and equipment designation specify data to load the control register 70. The calling number ("415 318 4444") from the register 64, prompts the memory 90 to load the validity bit 88 and the format exclusions in the field 89 of the register 68. Concurrently, the time clock 92 loads the field 91 with signals representative of the current time.

If the call register 68 does not receive a validity "1" bit, the calling number is indicated to be barred with a consequence that the line is released by the control unit 66. In that regard, a voice generator 106 (FIG. 3, left central) may be actuated by the control unit 66 branching to the operation of timing signal t6. Accordingly, a message of denial may be provided on the line 60 prior to release of the line. Note that the voice generator 106 may be variously used to prompt or inform callers in certain preliminary selection operations supplemental to the specific operations disclosed below.

As indicated above, concurrently with the loading of the call register 68 (timing signal t2), the control register 70 also is loaded. Specifically, from the register 64, the

JA0000422

5,351,285

13

called number cues the look-up table 84 to fill most of the control register (bits "1" through "16" FIG. 4) The fields 82 and 83 are supplied from the index 86.

That is, distinct from the fields loaded into the control register 70 from the look-up table 84, the fields 82 and 83 are supplied from the index 86. In that regard, assume the called number (area code 976) indicates that the charge for the service of the call will be billed through the caller's telephone records. Assume that the field 83 indicates a "tone" terminal effective for a conventional digital interface.

At this point, some still further assumptions will be made to pursue the explanation of the detailed operations. Specifically, assume that the format specified by the called number ("900 513 7777") is a lottery format and includes limitations with respect to time, history and demographics. Accordingly, the initial three bits of the control word all will be "1" bits in the control register 70.

Assume further that the time conditions specified by the field 74 (FIG. 4) limit calls from area code 415 to days other than Sunday. Assume that the history field 76 of the control word imposes a limitation of one call per day per calling station. Assume that the demographics field 78 excludes any call from area codes "512", "412", "812", . . . (not "415"). Finally, assume the selected format (field 80) designates a specific lottery format, that is lottery "128".

In addition to registration of the data sets detailed above, because a history test is specified, the recent history storage 98 is cued during the interval of timing signal t3. The operation is through the memory 90 by the control unit 66 to prompt the supply of historical data (previously registered record words) for the telephone terminal designated by the calling number ("415 318 4444"). Specifically, during the interval of timing signal t3, the storage 98 supplies data on the calling number to the history test logic network 100. Such data is compiled into a test format as to indicate the number of calls per day, per week, and so on. Note that aggregate call totals may also be supplied as a test criteria. Thus, the control unit 66 coordinates the test criteria data preparatory to the test operations of the individual logic networks 94, 100 and 102.

To summarize, in accordance with the above assumptions, the test control logic 72 is set up to coordinate the following specific logic tests:

Time limitation test by network 94: accept calls from area code 415 except on Sunday,

History limit test by network 100: accept only one call per day per station,

Demographics test by network 102: accept no calls from area codes 512, 412, 812 . . . (415 not listed).

As explained above, in addition to the limitations specified, in relation to the format, further limitations may be specified by the calling number. Such limitations are specified by the field 89 in the register 68 (FIGS. 3 and 5). In the instant example, assume that according to the record word, participation in the lottery format is limited to the interval between 10:00 a.m. and 3:00 p.m., e.g. when minors are in school. The code for such a format is supplied during the interval of timing signal t3 from the field 89 of the call register 68 to further establish the set-up of the logic 94 acting through the test control logic 72.

Recapitulating with regard to the test control logic 72, essentially a program is defined imposing each of the limitations that are specified by the call data in sufficient

14

detail that comparison tests are expediently performed by the networks 94, 100 and 102. It is stressed, as indicated above, that the tests are selectively performed only in the event a "1" bit appears in the representative first three bit locations of the control word format. In the illustrative example, all the tests were commanded and accordingly the test control logic 72 sets up the condition for tests to be performed by the networks 94, 100 and 102, all during the interval of timing signal t3. Of course, the specific example represents one possibility of a substantial number of programs that might be specified to the system.

With the test formats established in the test control logic 72, the logic networks 94, 100 and 102 are driven during the interval of test signal t4 to execute a program in accordance with the assumed example. The process may be variously implemented in logic using well known techniques and is detailed in FIG. 6. Consider the time test of the network 94. The time test logic network 94 approves an interface only if: the call is not from area code "415" on a Sunday and furthermore the call occurs between the hours of 10:00 a.m. and 3:00 p.m. As indicated in FIG. 6, a decision block 120 resolves the area-code "415" time test. If the area code is not "415", the logic proceeds to the next query block 122. Alternatively, if the area code is "415" the day must be tested against Sunday as indicated by the query block 124. An affirmative indication from the Sunday test of block 124 prompts a rejection as indicated by the block 126.

If the Sunday test of block 124 is passed, the program imposes another time test, that is the time-of-day test as indicated by the block 122. Again, a negative result prompts a rejection; however, a positive result involves the next step as indicated by the block 128.

Note that the operations designated by query blocks 120, 122 and 124 are performed by the time test logic network 94 (FIG. 3). The next test of the block 128 is performed by the history test logic 100. The block 128 (FIG. 6) involves a determination of whether or not the instant call is the first for the calling terminal on the instant calendar day. If not, the limitations are exceeded and the call is rejected. If the test is passed, the process next involves the demographic test logic network 102 (FIG. 3) to determine whether or not the call originated from an excluded area based on the calling number area code.

Area controls are illustrated by the query block 130 of FIG. 6. Specifically, the demographics test logic network 102 determines whether or not the current call is from a denied area. If so, the call is rejected as indicated by the block 126. Alternatively, if the area is not excluded, as illustrated by the block 134 in FIG. 6, the interface is accepted. In the instant case, the area "415" is acceptable.

In the operation of the system as illustrated in FIG. 3, the logic networks 94, 100 and 102 indicate test results to the test control logic 72 during the interval of the timing signal t5. The logic 72 correlates the test result for action by the control unit 66. If the imposed conditions are met (or if there are no conditions) the control unit 66 actuates the switch unit 105 and the address register 109 through the line 107 to perfect the interface from the line 60 (upper left) to either a port in the processor P (FIG. 1) or one of the operator stations OS-1-OSn. Essentially, the switching operation occurs during the interval of the timing signal t6. Concurrently, the address register 109 specifies the select oper-

5,351,285

15

ating format as stored in the processor P for direct use in an interface with a caller, or to be retrieved and supplied through the switch SW to prompt an operator at a station OS1-OSn.

Also during the interval of the timing signal t6, the contents of the call register 68 is stored in the recent history storage 98. Note that billing data is stored with the call words and may be selectively extracted from the storage 98. At the termination of the timing signal t6, the interface endures until there is a "disconnect" or an "abort".

If the processor P senses the existence of conditions specifying a shift between a processor interface and a live operator communication, the control unit 66 is actuated as indicated through line 115. Note that the abort signal is formed either in response to predetermined conditions in an interface with the processor P, or on command from an active operator station. The signal is also supplied to the look-up table 84 which becomes active if a transfer is conditional. That is, if a transfer is conditional, the tests as described above may be invoked. Conversely, if the transfer is unconditional, the control unit 66 simply actuates the switch 105 to make the change and prompts the format address register to establish the desired format or prompt pattern for an operator.

The formats may involve various records, however, in accordance with the system of the present invention affords considerable flexibility to program individual conditions and limitations for each interface format based on the call data (calling number and called number). An interface may involve no conditions or conditions may be imposed from the called number (format selection), the calling number, or both. Accordingly, effective control may be imposed depending upon the service requested as manifest by an individual format, the instant time, the history of use and the demographics involved. The imposed limitations may be non-existent or may involve a relatively complex test pattern as explained in detail above.

In the disclosed embodiment, an effective record of calls is accumulated in the recent history storage 98. Thus, a composite and detailed record is accumulated of individual calls as executed.

It is to be appreciated that numerous formats may be implemented and controlled utilizing the principles of the system as illustrated above. Accordingly, it is to be understood that the system of the present invention should be interpreted in accordance with the claims as set forth below.

What is claimed is:

1. An interface control system for use with, (1) a communication facility including remote terminals for individual callers, wherein said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means for providing data, (2) a multiple port, multiple format processor for interfacing a substantial number of callers in any of a plurality of formats to concurrently process data, and (3) a plurality of live operator stations with prompting capability for a plurality of formats, said interface control system comprising:

call data means for receiving signal-represented call data from said terminals including DNIS automatically provided by said telephonic communication system;

selection means coupled to said call data means for selecting one of said formats under control of said

16

call data including DNIS to thereby further specify imposed conditions that must exist for a connection of a call either to said multiple port, multiple format processor or one of said live operator stations in accordance with said select one of said formats, at least one of said formats having at least one imposed condition; and

interconnect switch means for providing format data and controlling connections from a calling remote terminal to a port of said multiple port, multiple format processor or one of said live operator stations under control of said selection means.

2. A system according to claim 1 further including test means to specify test conditions for certain of said formats and means to test compliance with said conditions to further control said interconnect switch means.

3. A system according to claim 2 wherein one of said test means comprises means for executing a test based on the time of a call.

4. A system according to claim 2 wherein one of said test means comprises means for executing a test based on the history of the calling remote terminal.

5. A system according to claim 2 wherein one of said test means comprises means for executing a test based on the demographics of the calling remote terminal.

6. A system according to claim 1 wherein said selection means includes a look-up table for specifying said formats addressed by call data.

7. A system according to claim 1 wherein said selection means includes a control storage location and means for setting control data in said control storage location responsive to said call data.

8. A system according to claim 1 further including a voice generator means for prompting a caller.

9. A system according to claim 1 further including means for storing data representative of calls.

10. A system according to claim 9 wherein said means for storing includes means for storing billing data.

11. A system according to claim 1 further including means to provide an abort signal, the system being responsive to said abort signal to reactuate said interconnect switch means for providing alternative connections with format data.

12. A system according to claim 11 further including test means to specify test conditions for certain of said formats and means to test compliance with said conditions to further control said interconnect switch means.

13. A system according to claim 1 wherein said selection means selects under control of DNIS signals.

14. A system according to claim 1 wherein said selection means selects under control of ANI signals.

15. A system according to claim 1 wherein said selection means selects under control of equipment type signals.

16. An interface control system for use with, (1) a communication facility including remote terminals for individual callers, wherein said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means for providing data, (2) a multiple port, multiple format processor for interfacing a substantial number of callers in any of a plurality of formats to concurrently process data, and (3) a plurality of live operator stations with prompting capability for a plurality of formats, said interface control system comprising:

call data logic for receiving signal-represented call data from said terminals including DNIS automati-

JA0000424

5,351,285

17

cally provided by said telephonic communication system;  
selection logic coupled to said call data logic for selecting one of said formats under control of said call data including DNIS to thereby further specify imposed conditions that must exist for a connection of a call either to said multiple port, multiple format processor or one of said live operator stations in accordance with a select one of said formats at least one of said formats having at least one imposed condition;  
test logic coupled to said selection logic for testing the imposed conditions to provide approval signals; and  
interconnect switch means for providing connections from a calling remote terminal to a port of said multiple port, multiple format processor or one of said live operator stations under control of said selection logic and under control of said approval signals from said test logic.

17. A process for interfacing (1) a telephonic communication system including individual remote calling terminals for individual callers with (2) a multiple port, multiple format data processing system, said multiple port, multiple format data processing system for concurrently processing data from said remote terminals according to a plurality of formats, at least one of said formats having at least one condition for a calling terminal, or (3) one of a plurality of operator stations with prompting capability for a plurality of formats, and wherein said telephonic communication system provides call data signals, as to indicate called and calling numbers, said process including the steps of:  
receiving said call data signals from said telephonic communication system for a calling remote terminal indicative of DNIS and ANI automatically provided by said telephonic communication system;  
selecting a processing format either for said multiple port, multiple format processing system or one of said plurality of operator stations for the calling remote terminal under control of said data signals as the selected format;  
testing the selected format in relation to said call data signals; and  
conditionally interfacing said calling terminal to said multiple port, multiple format data processing system for execution of said selected format or to one of said plurality of operator stations under control of said testing of call data signals.

18. A process for interfacing (1) a telephonic communication system including remote terminals either with (2) a multiple port, multiple format data processing system, said multiple port, multiple format data processing system for concurrently processing data from said remote terminals according to a plurality of formats, at least one of said formats having at least one condition for a calling terminal, or (3) one of a plurality of operator stations with prompting capability for a plurality of formats, and wherein said telephonic communication system provides call data signals, as to indicate called and calling numbers, said process including the steps of:  
receiving said call data signals from said telephonic communication system for a calling remote terminal indicative of DNIS and ANI automatically provided by said telephonic communication system, wherein said plurality of formats consist of at least one pay to dial format and one 800 toll free format;

18

selecting a processing format either for said multiple port, multiple format processing system or one of said plurality of operator stations for said calling remote terminal under control of said call data signals as the selected format;  
testing the selected format in relation to said call data signals; and  
conditionally interfacing said selected format to said calling remote terminal under control of said testing of said call data signals.

19. A method for interfacing (1) a telephonic communication system including individual remote calling terminals for individual callers with (2) a multiple port, multiple format data processing system, said multiple port, multiple format data processing system for concurrently processing data from said remote terminals according to a plurality of formats, at least one of said formats having at least one imposed condition for said remote terminals calling to interface said data processing system, and (3) a plurality of live operator attended terminals, and wherein said telephonic communication system includes the capability of providing call data signals, said method comprising the steps of:

receiving said call data signals from said telephonic communication system for said remote terminals calling to interface said data processing system including DNIS automatically provided by said telephonic communication system;  
selecting for said remote terminals, a select processing format from said plurality of formats of said multiple port, multiple format data processing system under control of said call data signals including DNIS provided by said telephonic communication system;  
testing said select processing format in relation to said call data signals;  
conditionally interfacing said select processing format to said remote terminals under control of said testing in relation to said call data signals; and  
selectively terminating certain select calls from said remote terminals in favor of said operator attended terminals.

20. A method for interfacing (1) a telephonic communication system including individual remote calling terminals for individual callers with (2) a multiple port, multiple format data processing system, said multiple port, multiple format data processing system for concurrently processing data from said remote terminals according to a plurality of formats, at least one of said formats having at least one specified condition for said remote terminals calling to interface said data processing system, and (3) a plurality of live operator attended terminals, and wherein said telephonic communication system includes the capability of providing call data signals, said method comprising the steps of:

receiving said call data signals from said telephonic communications system for said remote terminals calling to interface said data processing system including DNIS automatically provided by said telephonic communication system;  
selecting for said remote terminals, a select processing format from said plurality of formats of said multiple port, multiple format data processing system under control of said call data signals including DNIS provided by said telephonic communication system;  
testing said select processing format in relation to said call data signals;

JA0000425

5,351,285

19

conditionally interfacing said selected processing format to said remote terminals;  
selectively terminating certain select calls from said remote terminals in favor of said operator attended terminals; and  
transferring substantially all of said certain select calls from said operator attended terminals back to said multiple port, multiple format data processing system.

21. A method for interfacing a telephonic communication system according to claim 19, wherein said conditionally interfacing step further comprises the step of: interfacing said selected processing format to said remote terminals based upon data entered by operators at said live operator attended terminals.

22. A method for interfacing a telephonic communication system according to claim 19, further comprising the step of:

providing signal-represented call data from said remote terminals including calling numbers as additional call data signals.

23. A method for interfacing a telephonic communication system according to claim 22, further comprising the step of:

providing said additional call data signals automatically from said telephone communication system (e.g. ANI).

24. A method for interfacing a telephonic communication system according to claim 22, further comprising the steps of:

storing a record of negative file data, said select processing format using said additional call data signals to access said record and obtain data to specify and test for negative file conditions; and  
terminating calls from said remote terminals if said calling number matches said data obtained from said negative file data.

25. A method for interfacing a telephonic communication system according to claim 22, further comprising the step of:

storing a record of positive file data, said select processing format accessing said record based on said additional call data and obtaining data to specify and test for positive file conditions.

26. A method for interfacing a telephonic communication system according to claim 25, further comprising the step of:

terminating calls from said remote terminals if said data to specify and test for positive file conditions is not located.

27. A method for interfacing a telephonic communication system according to claim 25, further comprising the step of:

recording terms of caller billing associated with said select processing format.

28. A method for interfacing a telephonic communication system according to claim 19, wherein a plurality of called numbers are associated with said select processing format.

29. A method for interfacing a telephonic communication system according to claim 19, further comprising the step of:

testing to limit access to said select processing format on a one-time only basis.

30. A method for interfacing (1) a telephonic communication system including remote terminals for individual callers to make individual calls with (2) a multiple port, multiple format data processing system, said multi-

20

ple port, multiple format data processing system for concurrently processing data from said remote terminals according to a plurality of formats, at least one of said formats having at least one condition for said remote terminals calling to interface said data processing system, and (3) a plurality of live operator attended terminals, and wherein said telephonic communication system provides call data signals, said method comprising the steps of:

receiving said call data signals from said telephonic communications system for said remote terminals indicative of DNIS automatically provided by said telephonic communication system;

selecting a select processing format from said plurality of formats of said multiple port, multiple format processing system under control of said call data signals;

testing said select processing format in relation to said call data signals to provide approval signals;

conditionally interfacing said select processing format to said remote terminals under control of said approval signals and said call data signals; and  
storing data relating to said individual calls, along with any pay to dial billing data responsive to said call data signals.

31. A method for interfacing a telephonic communication system according to claim 30, further comprising the step of:

providing signal-represented call data from said remote terminals including calling numbers as additional call data signals.

32. A method for interfacing a telephonic communication system according to claim 31, further comprising the step of:

providing said additional call data signals automatically from said telephonic communication system (e.g. ANI).

33. A method for interfacing a telephonic communication system according to claim 32, further comprising the step of:

selectively extracting said pay to dial billing data.

34. A method for interfacing a telephonic communication system including remote terminals for individual callers to make individual calls with a multiple port, multiple format data processing system and a plurality of live operator attended terminals, said multiple port, multiple format data processing system for concurrently processing data from said remote terminals according to a plurality of formats, at least one of said formats having at least one condition for said remote terminals calling to interface said data processing system, and wherein said telephonic communication system provides certain call data signals, said method comprising the steps of:

receiving said certain call data signals from said telephonic communications system for said remote terminals calling to interface said data processing system including DNIS automatically provided by said telephonic communication system;

selecting for said remote terminals, a specific pay to dial processing format from said plurality of formats of said multiple port, multiple format processing system under control of said call data signals including DNIS;

testing said specific pay to dial processing format in relation to additional call data signals indicative of caller telephone number to provide approval signals; and

JA0000426

5,351,285

21

conditionally interfacing said specific pay to dial processing format to said remote terminals under control of said approval signals.

35. A method for interfacing a telephonic communication system according to claim 34, wherein said certain call data signals automatically provided by said telephonic communication facility include equipment data.

36. A method for interfacing a telephonic communication system according to claim 35, further comprising the step of:

automatically providing calling numbers (e.g. ANI) from said telephonic communication system as additional call data signals.

37. A method for interfacing a telephonic communication system according to claim 36, further comprising the step of:

testing said calling numbers (e.g. ANI) to specify use history conditions relating to said specific pay to dial processing format, for each of said individual calling terminals.

38. A method for interfacing a telephonic communication system according to claim 34, further comprising the step of:

testing to limit access of said remote terminals to a one time only use.

39. A method for interfacing a telephonic communication system according to claim 36, further comprising the steps of:

storing a record of negative file data, said specific pay to dial processing format accessing said record utilizing said automatically provided calling number data and obtaining data to specify and test for negative file conditions; and

terminating calls from said remote terminals if said calling number matches said data obtained from said negative file data.

40. A method for interfacing a telephonic communication system according to claim 39, wherein said test for negative file conditions is controlled by said calling numbers (e.g. ANI) automatically provided from said telephonic communication system as additional call data signals.

41. A method for interfacing a telephonic communication system according to claim 34, further comprising the steps of:

storing a record of positive file data, said specific pay to dial processing format accessing said record utilizing said caller telephone number data and obtaining data to specify and test for positive file conditions.

42. A method for interfacing a telephonic communication system according to claim 41, wherein said test for positive file conditions is controlled by calling numbers (e.g. ANI) automatically provided from said telephonic communication system as additional call data signals.

43. A method for interfacing a telephonic communication system according to claim 34, further comprising the step of:

processing certain select of said remote terminals calling to interface said multiple port, multiple format data processing system based on said call data signals to connect said remote terminals to one of said plurality of live operator attended terminals.

44. A method for interfacing a telephonic communication system according to claim 43, further comprising the step of:

22

automatically connecting certain of said remote terminals to certain of said plurality of live operator attended terminals where said individual callers are appropriately prompted.

45. A method for interfacing a telephonic communication system according to claim 34, wherein said testing step further comprises the step of:

executing a test based on historical limitations applied to an individual format and utilizing DNIS to control said test.

46. A method for interfacing a telephonic communication system including remote terminals with a multiple port, multiple format data processing system, said multiple port, multiple format data processing system for concurrently processing data from said remote terminals according to a plurality of formats, at least one of said formats having at least one imposed condition for said remote terminals calling to interface said data processing system, and wherein said telephonic communication system automatically provides call data signals, said method comprising the steps of:

receiving said call data signals from said telephonic communications system for said remote terminals including call data signals indicative of DNIS automatically provided by said telephonic communication system;

selecting for said remote terminals, a select processing format from said plurality of formats of said multiple port, multiple format processing system under control of said call data signals;

testing the select processing format in relation to said call data signals to limit access by said remote terminals to a one time use; and

conditionally interfacing said select processing format to said remote terminals responsive to said testing step.

47. A method for interfacing a telephonic communication system according to claim 46, further comprising the step of:

automatically providing calling numbers from said telephone communication system (e.g. ANI) as additional call data signals.

48. A method for interfacing a telephonic communication system including remote terminals with a multiple port, multiple format data processing system, said multiple port, multiple format data processing system for concurrently processing data from said remote terminals according to a plurality of formats, at least one of said formats having at least one imposed condition for said remote terminals calling to interface said data processing system, and wherein said telephonic communication system provides call data signals, said method comprising the steps of:

receiving said call data signals from said telephonic communications system for said remote terminals including DNIS and ANI automatically provided by said telephonic communication system;

selecting a pay to dial processing format from said plurality of formats of said multiple port, multiple format processing system under control of said call data signals including DNIS;

testing said pay to dial processing format in relation to said call data signals to provide test result signals;

conditionally interfacing said pay to dial processing format to said remote terminals responsive to said test result signals; and

5,351,285

23

storing billing provision data for each individual calling terminal based on said call data signals.

49. An interface control system for use with, (1) a communication facility including remote terminals for individual callers, wherein said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means for providing data, and (2) a multiple port, multiple format processor for concurrently processing data from a substantial number of callers in any of a plurality of formats, and (3) a plurality of live operator attended terminals with prompting capability for a plurality of formats, said interface control system comprising:

call data means for receiving signal-represented call data from said remote terminals including DNIS automatically provided by said telephonic communication system;

selection means coupled to said call data means for selecting one format from said plurality of formats of said multiple port, multiple format processor, said selection means being controlled by said signal-represented call data including DNIS to specify imposed conditions that must exist for a connection to said multiple port, multiple format processor, at least one of said formats having at least one imposed condition;

test means coupled to said selection means for testing said specified imposed conditions for said remote terminals to provide approval signals;

interconnect switch means coupled to said test means for providing connections from said multiple port, multiple format processor to said remote terminals under control of said approval signals; and switch means coupled to said interconnect switch for switching to one of said live operator attended terminals based on call data representative of a remote terminal device.

50. A system according to claim 49, further comprising:

switch means for switching calls from said live operator attended terminal back to said multiple format processor for automated processing.

51. An interface control system for use with, (1) a telephonic communication facility including remote terminals for individual callers, wherein said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means for providing data, and (2) a multiple port, multiple format processor for concurrently processing data from a substantial number of callers in any of a plurality of formats, said interface control system comprising:

call data means for receiving signal-represented call data from said remote terminals indicative of DNIS automatically provided by said telephonic communication facility;

selection means coupled to said call data means for selecting one pay to dial format from said plurality of formats of said multiple port, multiple format processor, said selection means being controlled by said signal-represented call data to specify imposed conditions that must exist for a connection to said multiple port, multiple format processor, at least one of said formats having at least one imposed condition;

test means coupled to said selection means for testing said imposed conditions to provide approval signals;

24

interconnect switch means coupled to said test means for providing connections from said multiple port, multiple format processor to said remote terminals under control of said approval signals; and

record means for storing data representative of calls from said individual callers and pay to dial individual caller billing data, under the control of said signal-represented call data.

52. A method for interfacing a telephonic communication system according to claim 51, further comprising the step of:

automatically providing calling numbers from said telephone communication system (e.g. ANI) as additional call data signals.

53. An interface control system according to claim 51, wherein said individual caller billing data is based on a control word for each operating format which imposes the terms of said caller billing data.

54. An interface control system for use with, (1) a telephonic communication facility including remote terminals for individual callers, wherein said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means for providing data, and (2) a multiple port, multiple format processor for concurrently processing data from a substantial number of callers in any of a plurality of formats, said telephonic communication facility automatically provides call data signals, as to indicate called numbers to select a particular format from said plurality of formats, and (3) a plurality of live operator attended terminals with prompting capability for a plurality of formats, said interface control system comprising:

interface means for providing an introductory automated voice message relating to a specific format from said plurality of formats;

means for forwarding coupled to said interface means for forwarding a call from any one of said remote terminals to one of said plurality of live operator attended terminals;

means for processing coupled to said forwarding means for processing caller information data entered by an operator at said live operator attended terminal;

means for storing coupled to said processing means for storing certain select data from said caller information data entered by said operator; and

means for reconnecting said call to said interface means to receive certain processed data via an automated voice message.

55. An interface control system according to claim 54, wherein said call data signals automatically provided by said telephonic communication facility include data representative of said remote terminals.

56. An interface control system according to claim 55, wherein said automatically provided call data signals indicating called numbers and data representative of said remote terminals forward said call automatically to one of said plurality of live operator attended terminals.

57. An interface control system according to claim 54, wherein certain of said individual callers digitally enter data.

58. An interface control system according to claim 57, wherein said data entered by said individual callers is stored in said interface control system.

59. An interface control system according to claim 54, further comprising:

JA0000428



5,351,285

25

test structure to specify test conditions against which said caller information data entered by said operators is tested to provide approval signals and said call is interfaced with said specific format depending upon said approval signals.

60. An interface control system according to claim 59, wherein said test structure executes a test based on the history of said remote terminal.

61. An interface control system according to claim 54, wherein a plurality of called numbers are associated with said select processing format.

62. A method for interfacing a telephonic communication system including individual remote calling terminals for individual callers to make individual calls with a multiple port, multiple format data processing system and a plurality of live operator attended terminals, said multiple port, multiple format data processing system for concurrently processing data from said remote terminals according to a plurality of formats, at least one of said formats having at least one condition for said remote terminals calling to interface said data processing system, and wherein said telephonic communication system automatically provides call data signals, said method comprising the steps of:

receiving said call data signals from said telephonic communications system for said remote terminals calling to interface said data processing system indicative of DNIS automatically provided by said telephonic communication system;

selecting for said remote calling terminals, a select processing format from said plurality of formats of said multiple port, multiple format processing system under control of said call data signals, said plurality of formats including pay to dial processing formats;

testing use history conditions for said remote calling terminals when said select processing format is a pay to dial processing format to provide approval signals; and

conditionally interfacing said pay to dial processing format to said remote terminals under control of said approval signals.

63. A method for interfacing a telephonic communication system according to claim 62, wherein said automatically provided call data signals further indicate information indicative of said remote terminal devices.

64. A method for interfacing a telephonic communication system according to claim 62, wherein said testing step comprises the step of testing use history conditions for said remote calling terminals only for certain of said pay to dial processing formats.

65. An interface control system for use with, (1) a communication facility including remote terminals for individual callers to make calls, wherein said remote terminals may comprise a conventional telephone instrument including voice communication means and some of said remote terminals may further comprise digital input means for providing data, and (2) a multiple port, multiple format processor for concurrently processing data from a substantial number of callers in

26

any of a plurality of formats, said communication facility automatically provides call data signals with respect to pay to dial formats, as to indicate called data (DNIS) including equipment data, to select a particular format from said plurality of formats, and (3) a plurality of live operator attended terminals with prompting capability, for a plurality of formats, said interface control system comprising:

interface means for providing automated voice messages relating to a specific format to certain of said individual callers, wherein said certain of said individual callers digitally enter data through said digital input means;

means for directly forwarding a call coupled to said interface means for forwarding a call from any one of said remote terminals to one of said plurality of live operator attended terminals under control of said call data signals when said remote terminals do not have capability to digitally provide data;

means for processing coupled to said live operator attended terminals for processing caller information data entered by an operator at said live operator attended terminal; and

means for storing coupled to said interface means and said processing means for storing certain select data from said caller information data entered by said operator and data entered digitally by said individual callers.

66. An interface control system according to claim 65, wherein one of said pay to dial formats comprises a 900 number calling format.

67. A method for interfacing a telephonic communication system including remote terminals with a multiple port, multiple format data processing system, said multiple port, multiple format data processing system for concurrently processing data from said remote terminals according to a plurality of formats, at least one of said formats having at least one condition for said remote terminals calling to interface said data processing system, and wherein said telephonic communication system provides call data signals indicating called (e.g. DNIS) and calling (e.g. ANI) numbers, said method comprising the steps of:

receiving said call data signals from said telephonic communications system for said remote terminals indicative of DNIS and ANI automatically provided by said telephonic communication system;

selecting a pay to dial processing format from said plurality of formats of said multiple port, multiple format processing system under control of certain of said call data signals;

testing said pay to dial processing format in relation to said call data signals to provide test result signals;

conditionally interfacing said pay to dial processing format to said remote terminals responsive to said test result signals; and

storing billing provision data for each individual calling terminal based on said call data signals.

\* \* \* \* \*



Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000054

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,684,863  
DATED : November 4, 1997  
INVENTOR(S) : Ronald A. Katz

Page 1 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 7, line 29, after "response", --is-- should be inserted.

Column 10, line 52, "maybe" should be --may be--.

Column 12, line 12, there should be no comma after "from".

Column 16, line 28, there should be no comma after "qualified".

Column 18, line 12, "Comprehensive" should be  
--comprehensive--.

Column 19, line 6, "fur" should be --for--.

**IN THE CLAIMS:**

Column 27, line 21, in claim 59, "test" should be --tests--.

Column 29, line 61, in claim 79, before "remote", "an" should be  
--a--.

JA0000459

Katz v. Citibank, et al.

Civil Action No. 5:05-CV-142-DF

KTL0000055

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,684,863  
DATED : November 4, 1997  
INVENTOR(S) : Ronald A. Katz

Page 2 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 31, line 9, in claim 92, "An" should be --A--.



Attest:

*Virginia Tolbert*

Attesting Officer

Signed and Sealed this

Twenty-ninth Day of May, 2001

*Nicholas P. Godici*

NICHOLAS P. GODICI

Acting Director of the United States Patent and Trademark Office

JA0000460

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000056



US005684863A

**United States Patent** [19]**Katz**[11] **Patent Number:** **5,684,863**[45] **Date of Patent:** **\*Nov. 4, 1997**[54] **TELEPHONIC-INTERFACE STATISTICAL ANALYSIS SYSTEM**[75] **Inventor:** **Ronald A. Katz**, Los Angeles, Calif.[73] **Assignee:** **Ronald A. Katz, Technology Lic. L.P.**, Los Angeles, Calif.[\*] **Notice:** The term of this patent shall not extend beyond the expiration date of Pat. No. 4,845,739.[21] **Appl. No.:** **476,662**[22] **Filed:** **Jun. 7, 1995****Related U.S. Application Data**

[63] Continuation of Ser. No. 335,923, Apr. 10, 1989, which is a continuation of Ser. No. 194,258, May 16, 1988, Pat. No. 4,845,739, which is a continuation-in-part of Ser. No. 18,244, Feb. 24, 1987, Pat. No. 4,792,968, which is a continuation-in-part of Ser. No. 753,299, Jul. 10, 1985, abandoned.

[51] **Int. Cl.<sup>6</sup>** ..... **H04M 1/57; H04M 1/66; H04M 3/50; H04M 15/12**[52] **U.S. Cl.** ..... **379/88; 379/91; 379/112; 379/142; 379/196; 379/245; 379/265**[58] **Field of Search** ..... **379/88, 89, 67, 379/92, 91, 127, 142, 245, 246, 247, 201, 265, 266, 196, 197, 198, 112**[56] **References Cited****U.S. PATENT DOCUMENTS**

2,902,541 9/1959 Singleton ..... 379/106  
3,246,082 4/1966 Levy .  
3,393,272 7/1968 Hanson .

(List continued on next page.)

**FOREIGN PATENT DOCUMENTS**

66113/81 7/1981 Australia .  
1022674 12/1977 Canada .  
1025118 1/1978 Canada .

1056500 6/1979 Canada .  
1059621 7/1979 Canada .  
1162336 2/1984 Canada .  
1225759 8/1987 Canada .  
2009937-2 8/1990 Canada .

(List continued on next page.)

**OTHER PUBLICATIONS**

Lexis Search Results (Great American Potato-Chip giveaway/Raisin Bran Game/Giants Baseball Trivia—Dial Info): "In The Chips" AdWeek, Jul. 22, 1985.

"San-Fran-Police-League", Business Wire, Aug. 2, 1985.

"Similar Campaigns", DM News, Dec. 15, 1985.

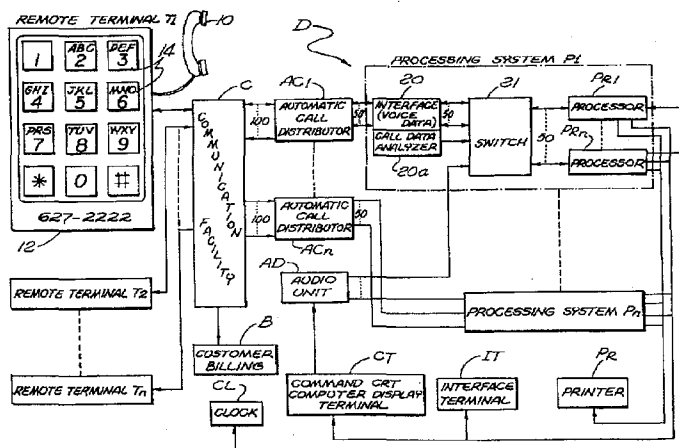
"Phone Offers Action At Push Of Button", Advertising Age, Feb. 6, 1986.

(List continued on next page.)

*Primary Examiner*—Thomas W. Brown  
*Attorney, Agent, or Firm*—Darby & Darby, P.C.

[57] **ABSTRACT**

A system D interfaces with a multiplicity of individual terminals T1-Tn of a telephone network facility C, at the terminals callers are prompted by voice-generated instructions to provide digital data that is identified for positive association with a caller and is stored for processing. The caller's identification data is confirmed using various techniques and callers may be ranked and accounted for on the basis of entitlement, sequence or demographics. Callers are assigned random designations that are stored along with statistical and identification data. A break-off control circuit may terminate the computer interface aborting to a terminal for direct communication with an operator. Real-time operation processing is an alternative to stored data. The accumulation of stored data (statistical, calling order sequence, etc.) is variously processed and correlated as with developed or established data to isolate a select group or subset of callers who can be readily identified and reliably confirmed. Different program formats variously control the processing of statistical data as for auction sales, contests, lotteries, polls, commercials and so on.

**202 Claims, 6 Drawing Sheets**

JA0000461

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000057

5,684,863

Page 2

## U.S. PATENT DOCUMENTS

3,394,246	7/1968	Goldman	235/380	4,634,809	1/1987	Paulsson et al.	379/91
3,544,769	12/1970	Hedin	235/379	4,649,563	3/1987	Riskin	379/97
3,594,004	7/1971	Barr	273/139	4,652,998	3/1987	Koza	463/26
3,617,638	11/1971	Jochimsen et al.	379/91	4,658,417	4/1987	Hashimoto et al.	379/97
3,644,675	2/1972	Waltington	379/92	4,663,777	5/1987	Szeto	379/88
3,688,126	8/1972	Klein		4,671,512	6/1987	Bachman et al.	273/139
3,696,335	10/1972	Lemelson	340/825.33	4,674,044	6/1987	Kalmus et al.	364/408
3,794,774	2/1974	Kemmerly et al.		4,677,553	6/1987	Roberts et al.	463/17
3,800,283	3/1974	Gropper	379/91	4,694,490	9/1987	Harvey et al.	380/20
3,881,160	4/1975	Ross	333/124	4,697,282	9/1987	Winter et al.	379/67
3,889,050	6/1975	Thompson	348/6	4,704,725	11/1987	Harvey et al.	380/9
3,909,553	9/1975	Marshall		4,706,275	11/1987	Kamil	397/144
3,912,874	10/1975	Botterell et al.	379/201	4,716,583	12/1987	Groner et al.	379/88
3,918,174	11/1975	Miller et al.	434/346	4,745,468	5/1988	Von Kohorn	348/13
3,934,095	1/1976	Matthews et al.	379/67	4,756,020	7/1988	Fodale	379/112
3,947,972	4/1976	Freeman		4,757,267	7/1988	Riskin	379/113
3,950,618	4/1976	Blois	379/92	4,761,684	8/1988	Clark et al.	379/105 X
3,998,465	12/1976	Mascola	273/139	4,764,666	8/1988	Bergeron	463/25
4,017,835	4/1977	Randolph	379/91	4,766,604	8/1988	Axberg	379/67
4,054,756	10/1977	Comella et al.	379/89	4,774,655	9/1988	Kollin et al.	395/604
4,078,316	3/1978	Freeman		4,781,377	11/1988	McVean et al.	273/86 R
4,090,038	5/1978	Biggs	379/393	4,785,408	11/1988	Britton et al.	395/2.79
4,117,278	9/1978	Ehrlich et al.	379/34	4,788,682	11/1988	Vij et al.	370/110.1
4,121,052	10/1978	Richard	379/96	4,788,715	11/1988	Lee	379/84
4,145,578	3/1979	Orriss	379/188	4,788,718	11/1988	McNabb et al.	379/113
4,162,377	7/1979	Meams	379/127	4,792,968	12/1988	Katz	379/92
4,191,376	3/1980	Goldman	273/139	4,796,293	1/1989	Blinken et al.	379/202
4,191,860	3/1980	Weber	379/115	4,797,910	1/1989	Daudelin	379/67
4,194,089	3/1980	Hashimoto	379/76	4,797,911	1/1989	Szlam et al.	379/67
4,241,942	12/1980	Bachman	283/102	4,797,913	1/1989	Kaplan et al.	379/91
4,242,539	12/1980	Hashimoto	379/142	4,805,209	2/1989	Baker, Jr. et al.	379/96
4,243,844	1/1981	Waldman	379/442	4,812,843	3/1989	Champion, III et al.	340/905
4,255,618	3/1981	Danner et al.	379/88 X	4,815,121	3/1989	Yoshida	379/67
4,264,924	4/1981	Freeman		4,827,500	5/1989	Binkerd et al.	379/88
4,264,925	4/1981	Freeman et al.		4,842,278	6/1989	Markowicz	463/18
4,277,649	7/1981	Sheinbein	379/201	4,845,739	7/1989	Katz	379/92
4,299,637	11/1981	Oberdeck et al.	156/64	4,847,890	7/1989	Solomon et al.	379/67
4,302,810	11/1981	Bounicius et al.	380/24	4,852,154	7/1989	Lewis et al.	379/105
4,314,103	2/1982	Wilson	379/77	4,866,756	9/1989	Crame et al.	379/88
4,345,315	8/1982	Cadotte et al.	379/92	4,882,473	11/1989	Bergeron et al.	463/25
4,348,554	9/1982	Asmuth	379/113	4,893,328	1/1990	Peacock	379/67
4,355,207	10/1982	Curtin	379/67	4,894,857	1/1990	Szlam et al.	379/67
4,360,827	11/1982	Braun	348/15	4,896,345	1/1990	Thorne	379/67
4,376,875	3/1983	Beirne	379/88	4,897,867	1/1990	Foster	379/94
4,398,708	8/1983	Goldman et al.		4,899,375	2/1990	Bauer et al.	379/264
4,439,636	3/1984	Newkirk et al.	379/123	4,907,079	3/1990	Turner et al.	379/92 X
4,468,528	8/1984	Reece et al.	379/84	4,922,522	5/1990	Scanlon	463/17
4,489,438	12/1984	Hughes	381/51	4,937,853	6/1990	Brule et al.	379/96
4,490,583	12/1984	Bednarz et al.	379/158	4,942,598	7/1990	Davis	379/67 X
4,521,643	6/1985	Dupuis et al.	379/49	4,942,599	7/1990	Gordon et al.	379/93
4,523,055	6/1985	Hohl et al.	379/89	4,964,157	10/1990	Aoshima	379/204
4,532,378	7/1985	Nakayama et al.	379/110	4,965,825	10/1990	Harvey et al.	380/9
4,541,087	9/1985	Comstock	370/263	4,969,185	11/1990	Dorst et al.	379/209
4,549,047	10/1985	Brian et al.	379/88	4,972,461	11/1990	Brown et al.	379/67
4,555,594	11/1985	Friedes et al.	379/220	4,989,233	1/1991	Schakowsky et al.	379/92
4,559,415	12/1985	Bernard et al.	379/95	4,996,705	2/1991	Entenmann et al.	379/91
4,562,342	12/1985	Solo	235/380	5,001,710	3/1991	Gawrys et al.	370/110.1
4,567,359	1/1986	Lockwood	235/381	5,003,574	3/1991	Deng et al.	379/75
4,570,930	2/1986	Matheson	273/434	5,014,298	5/1991	Katz	379/93
4,578,700	3/1986	Roberts et al.	379/92	5,017,917	5/1991	Fisher et al.	340/825.79
4,582,956	4/1986	Doughty	379/94	5,018,736	5/1991	Pearson et al.	463/29
4,584,602	4/1986	Nakagawa	379/92	5,023,904	6/1991	Kaplan et al.	379/91
4,585,906	4/1986	Matthews et al.	379/88	5,046,183	9/1991	Dorst et al.	370/262
4,586,707	5/1986	McNeight et al.	273/430	5,083,272	1/1992	Walker et al.	364/412
4,587,379	5/1986	Masuda	379/91	5,097,528	3/1992	Gursahaney et al.	379/67
4,591,190	5/1986	Clark	283/102	5,109,414	4/1992	Harvey et al.	380/9
4,614,367	9/1986	Breen	283/102	5,127,003	6/1992	Doll, Jr. et al.	370/259
4,625,276	11/1986	Benton et al.	364/408	5,146,491	9/1992	Silver et al.	379/114
4,630,200	12/1986	Ohmae et al.	364/405	5,181,238	1/1993	Medamana et al.	379/95
4,630,201	12/1986	White	364/408	5,233,654	8/1993	Harvey et al.	380/20
				5,255,183	10/1993	Katz	395/230
				5,263,723	11/1993	Pearson et al.	463/41

JA0000462

5,684,863

Page 3

5,333,185	7/1994	Burke et al.	379/127
5,335,277	8/1994	Harvey et al.	380/20
5,351,276	9/1994	Doll, Jr. et al.	379/67
5,353,335	10/1994	D'Urso et al.	379/67

## FOREIGN PATENT DOCUMENTS

0 120 322	2/1984	European Pat. Off.
0 229 170 A	7/1987	European Pat. Off.
0249575	12/1987	European Pat. Off.
0295837	12/1988	European Pat. Off.
0342295	11/1989	European Pat. Off.
0434181	6/1991	European Pat. Off.
0 568 114 A	11/1993	European Pat. Off.
0 620 669 A	10/1994	European Pat. Off.
9002131	8/1990	France
OS 2929416	2/1981	Germany
OS 3726366	2/1988	Germany
4005365 A1	8/1990	Germany
52-17740	9/1977	Japan
56-152365	11/1981	Japan
500138/88	1/1988	Japan
298158/90	12/1990	Japan
41855/91	2/1991	Japan
2184327	6/1987	United Kingdom
2 230 403	10/1990	United Kingdom
WO 87/00375	1/1987	WIPO
WO88/02966	4/1988	WIPO
WO88/05985	8/1988	WIPO
WO89/02139	3/1989	WIPO
WO89/09530	10/1989	WIPO
WO93/05483	3/1993	WIPO

## OTHER PUBLICATIONS

Boies, Stephen J., "A Computer Based Audio Communication System", *Computer Sciences Department*, Thomas J. Watson Research Center, Yorktown Heights, New York, USA, pp. 701-704—(Article) (undated).

Winckelmann, W.A., "Automatic Intercept Service", *Bell Laboratories Record*, May 1968, vol. 46, No. 5, pp. 138, 143—(Article).

"Proposed Agreement Between National Enterprises Board (N.E.B.) and Delphi", Jan. 30, 1979.

Voysey, Hedley, "Nexos wins rights to comms engine", *Computing*, Sep. 6, ??, vol. 7, No. 36—(Article).

"Appraisal Of The Fair Market Value Of Delphi Communications", Apr. 30, 1980—(Study) Delphi Communications—(Charts and Exhibits).

"Voice-Response System Improves Order Entry, Inventory Control", *Communication News*, Aug. 1976—(Article).

"Periphonics VOICEPACK",—(Brochure) (undated).

"The Voice Response Peripheral That Touch-Tone Telephone Into A Computer Terminal", Periphonics Corporation—(Brochure)—(undated).

Rabin, Jeff, "Minorities Seek 30% Share of All Lottery Operations", *Sacramento Bee*, Apr. 12, 1985—(Article).

Advertisements (Dial Giants Baseball Trivia Game): *San Francisco Chronicle*, Jul. 3, 1984.

Curtis, Cathy, "976 numbers let you dial-a-whatever", *San Francisco Business Journal*, Nov. 26, 1984—(Article).

Ferrell, Jane, "Three little numbers for instant information", *San Francisco Chronicle*, Aug. 15, 1984—(Article).

"Dallas Telephone Call-in Game Uses Computer Voice Interface", Sep. 24, 1984—(Press Release).

Rivest, R.L., et al., "A Method for Obtaining Digital Signatures and Public-Key Cryptosystems", *Communications of the ACM*, Feb. 1978, vol. 21, No. 2, pp. 120-126—(Article).

Finnigan, Paul F. "Audiotex: The telephone as data-access equipment", *Data Communications*, 1987, pp. 155-161 (Article).

Ozawa, Y., et al., "Voice Response System and Its Applications", *Hitachi Review*, Dec. 1979, vol. 28, No. 6, pp. 301-305—(Article).

"AT&T 2: Reaches agreement with Rockwell (ROK)", Aug. 26, 1986—(Press Release).

"AT&T: Expands Computer speech system product line", Apr. 14, 1986—(Press Release).

Adams, Cynthia, "Conversing With Computers", *Computerworld on Communications* May 18, 1983, vol. 17, No. 20A, pp. 36-44—(Article).

Hester, S.D., et al., "The AT&T Multi-Mode Voice Systems—Full Spectrum Solutions For Speech Processing Applications", Sep. 1985, pp. 1-10—(Proceedings Of The 1985 AVIOS Conference).

Davidson, Leon, "A Pushbutton Telephone For Alphanumeric Input", *Detamation*, Apr. 1966, pp. 27-30—(Article).

Advertisement: Cuervo Gold Beach Chair, VoiceMail Int'l, '83.

"Digital's All-In-1 Voice Messaging", *Digital*—(Brochure) (undated).

"Access Voice and Mail Messages From One Familiar Source", *Insight*—(Article) (undated).

"Get The Message . . . ! New VoiceMail Features", *Voice-mail International, Inc.*, Oct. 1984—(Article).

Brochures (TWA Crew Scheduling/PSA's Reservation System/Universal Studios Program/Dow Phone): "AVIAR The communication system that keeps you flying", VoiceMail Int'l.—(Brochure) (undated).

"TWA VOICEMAIL, Flight Attendants Users Guide" Aug. 1986—(Brochure).

Holtzman, Henry, "Voice Mail Soars At TWA", *Modern Office Technology* (Reprint), Mar. 1986—(Article).

"Bid Results via VOICEMAIL—Flight Deck Crew Members", May 1, 1985 (Script).

Borden, W.S., "Flight Attendant Self Input Of Monthly Bids Via Touch Tone Telephone", *In:Flight Services Bulletin*, Sep. 15, 1985—(Memo).

"Look Ma, no operators! Automatic voice system does many airline jobs", *Air Transport World*, Oct. 1986 (Article).

"1,000,000 Shares Common Stock" *Voice-mail International, Inc.*, Jan. 10, 1984—(Public Offering Summary).

Levinson, S.E., et al., "A Conversational-Mode Airline Information and Reservation System Using Speech Input and Output", *The Bell System Technical Journal*, Jan. 1980, vol. 59, No. 1, pp. 119-137.

Emerson, S.T., "Voice Response Systems—Technology to the Rescue for Business Users", *Speech Technology*, Jan./Feb. '83, pp. 99-103—(Article).

Moslow, Jim, "Emergency reporting system for small communities", *Telephony*, Feb. 11, 1985, pp. 30-32, 34—(Article).

Rabiner, L.R., et al., "Digital Techniques for Computer Voice Response: Implementation and Applications", *Proceedings Of The IEEE*, Apr. 1976, vol. 64, No. 4, pp. 416-432—(Article).

Moosemiller, J.P., "AT&T's CONVERSANT™ I Voice System", *Speech Technology*, Mar./Apr. 1986, pp. 88-93 (Article).

Frank, R.J., et al., "No. 4 ESS: Mass Announcement Capability", *The Bell System Technical Journal*, Jul./Aug. 1981, vol. 60, No. 6, Part 2, pp. 1049-1081—(Chapter from a Book).

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000059

5,684,863

Page 4

"Chapter I General Description" *D.I.A.L. PRM/Release 3—Version 2* Mar. 1987 (Product Reference Manual).

"Announcing Release 3.3" *D-A-S-H-D.I.A.L. Application and Support Hints*, Jan./Feb. Mar. 1987, vol. 3, No. 1 (Brochure).

"D.I.A.L. Software Release 4", OPCOM, Jan. 1988, Version 1—(Product Reference Manual).

Brady, R.L., et al., "Telephone Identifier Interface", *IBM Technical Disclosure Bulletin*, Oct. 1976, vol. 19, No. 5, pp. 1569–1571—(Article).

Corbett, A.J., "Telephone Enquiry System Using Synthetic Speech", *University of Essex*, Dec. 1974, (Thesis).

Yoshizawa, K., et al., "Voice Response System for Telephone Betting", *Hitachi Review*, Jun. 1977, Vol. 26, No. 6—(Article).

Sagawa, S., et al., "Automatic Seat Reservation By Touch-Tone Telephone", *Second USA Japan Computer Conference*, 1975, vol. 2, pp. 290–294—(Article).

Smith, S.L., "Computer-Generated Speech and Man-Computer Interaction", *Human Factors*, 1970, 12(2), pp. 215–223—(Article).

Newhouse, A., et al., "On The Use Of Very Low Cost Terminals", *University of Houston*, pp. 240–249—(Paper)—(undated).

Mullen, R.W., "Telephone—home's 'friendliest' Computer", *Inside Telephone Engineer And Management*, May 15, 1985, vol. 89, No. 10,—(Article).

"Telephone Computing Entering Service Bureau Business", *American Banker*, Jul. 5, 1979—(Article).

Kutler, Jeffrey, "Technology, System Sharing Improve Phone Baking Outlook", *American Banker*, Dec. 7, 1979, vol. CXLIV, No. 237—(Article).

Kutler, Jeffrey, "Phone Bill Paying Accessed by Pioneer", *American Banker*, Dec. 7, 1979, vol. CXLIV, No. 237—(Article).

"Audiotax Information From Dow Jones", *The Computer Review*, Nov. 1994 vol. 2 No. 1—(Article).

"User's Guide", *Dowphone*—(undated).

"Dow Phone Adds Innovest Systems' Technical Analysis Reports" *IDP Report*, Jan. 3, 1986—(Report).

Perdue, R.J., et al., "Conversant 1 Voice System: Architecture and Applications", *AT&T Technical Journal*, Sep./Oct. 1986—(Article).

Martin, James, "Design of Man-Computer Dialogues", *IBM System Research Institute*, Chapter 16, pp. 283–306 (Chapter from a Book) (undated).

Kaiserman, D.B., "The Role Of Audio Response In Data Collection Systems", *Proceedings of the Technical Sessions*, Paleis des Expositions, Geneva, Switzerland, Jun. 17–19, 1980, pp. 247–251—(Article).

Boies, S.J., et al., "User Interface for Audio Communication System", *IBM Technical Disclosure*, Bulletin, Dec. 1982, vol. 25, No. 7A, pp. 3371–3377—(Article).

Kramer, J.J., "Human Factors Problems in the Use of Pushbutton Telephones for Data Entry", *Bell Telephone Laboratories*, Holmdel, N.J., Apr. '74, pp. 241–258—(Paper).

Cox, Jr., Floyd, "Flora Fax", Jan. 22, 1986—(Letter and Advertisements).

Isayama, Tetsuya, "Automatic Response Processing Equipment as a Multi-media Communication Node", *Japan Telecommunications Review*, 1987, vol. 29, No. 1, pp. 29–36—(Article).

Imai, Y., et al., "Shared Audio Information System Using New Audio Response Unit" *Japan Telecommunications Review*, Oct. 1981, vol. 23, No. 4, pp. 383–390—(Article).

"Distrust of computer kills home service plan"—(date and source missing).

"Automatic Call Distributor/Management Information System: Interface between 1/1AESS™ Switch Central Office and Customer Premises Equipment", *Bell Communications Research*, Dec. 1986, Technical Reference TR-TSY-000306, Issue 1—(Article).

"Comparison Of ACD Systems", *Connection*, Feb. 1990—(Chart).

"ACD Comparison", *Aspect*, Feb; 2, 1990—(Final Report).

C.R. Newson, "Merlin Voice Mail VM600," *British Telecommunications Engineering*, vol. 4, Apr. 1985, pp. 32–35.

A.S. Yatagai, "Telephonic Voice Synthesis Systems," *Telecommunications*, Aug. 1985, pp. 56h–I, 68.

A.J. Waite, "Getting Personal With New Technologies For Telemarketers," *DM News*, Feb. 15, 1987 at 50.

"Shopping via a network is no longer just talk," *Data Communications*, Aug. 1981 at 43.

"Growth-Oriented Systems," *Restaurant Technology*, Nation's Restaurant News Newspaper, Jul. 1, 1985 at 51.

"Let your fingers do the tapping . . . and the computer the talking," *Modern Office Tech.*, May 1994 at 80.

"American Software unveils systems for IBM mainframes," *Computerworld*, Mar. 26, 1984 at 59.

"Business Units Get Order Entry," *Computerworld*, Jul. 12, 1982 at 36.

Kroemer, F., "TELEBOX", *Unterrichtsblätter*, year 38/1985, No. 4, pp. 131–141 (Article)—no translation.

Kroemer, F., "TELEBOX", *Unterrichtsblätter*, year 41/1988, No. 2, pp. 67–83 (Article)—no translation.

Borison, V.S., "TRANSACTION—telephone gets the fact at the point of sale", *Bell Laboratories Record*, Oct. 1975, pp. 377–383—(Article).

Demeautis, M., et al., "The TV 200 A Transactional Telephone", *Commutation & Transmission n° 5*, 1985, pp. 71–82—(Article).

Eriksson, G., et al., "Voice and Data Workstations and Services in the ISDN", *Ericsson Review*, May 1984, pp. 14–19—(Article).

Schrage, Michael, "A Game Von Meister in Pursuit of Profits", *Washington Post*, Sep. 23, 1985—(Article).

Svigals, J., "Low Cost Point-Of-Sale Terminal", *IBM Technical Disclosure Bulletin*, Sep. 1982, vol. 25, No. 4, p. 1835.

Turbat, A., "Telepayment And Electronic Money The Smart Card", *Commutation & Transmission n° 5*, 1982, pp. 11–20—(Article).

"Voice Mail", *Sound & Communications*, Apr. 1983, vol. 28 No. 12, pp. 84–85—(Article).

JA0000464

Katz v. Citibank, et al.

Civil Action No. 5:05-CV-142-DF

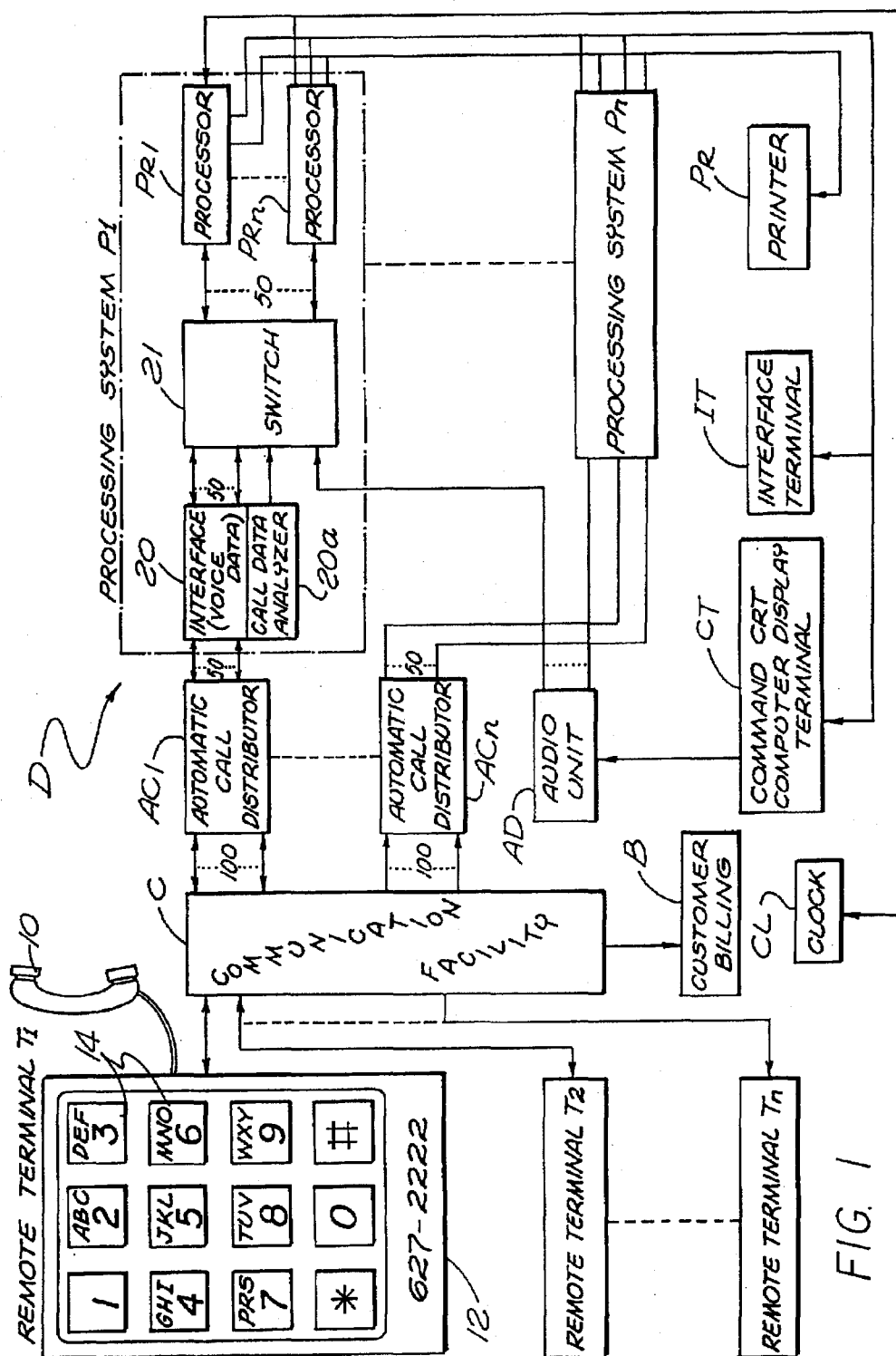
KTL0000060

U.S. Patent

Nov. 4, 1997

Sheet 1 of 6

5,684,863



JA0000465

U.S. Patent

Nov. 4, 1997

Sheet 2 of 6

5,684,863

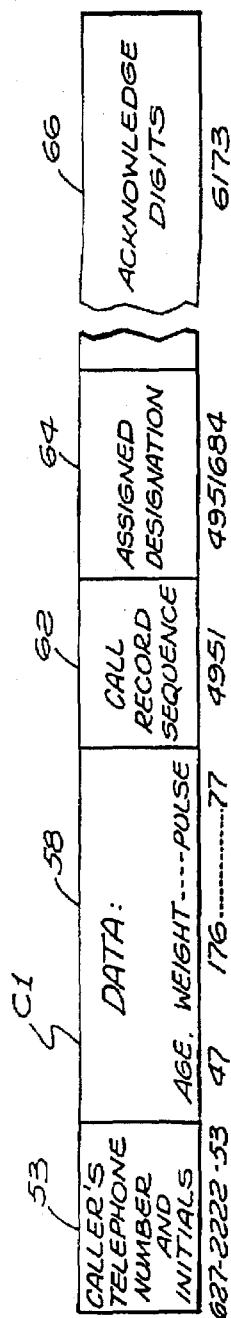


FIG. 2

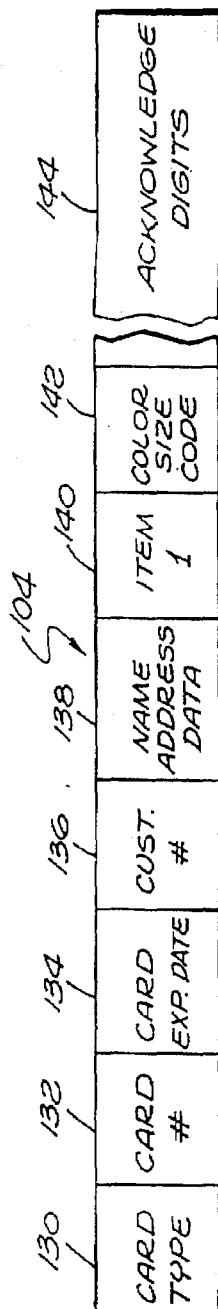


FIG. 5

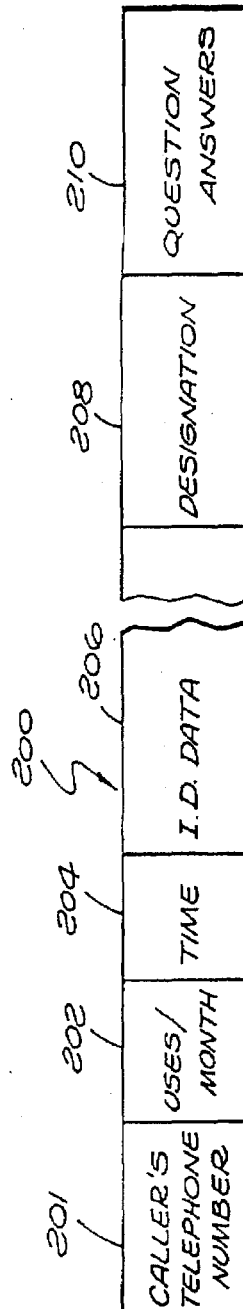


FIG. 7



U.S. Patent

Nov. 4, 1997

Sheet 3 of 6

5,684,863

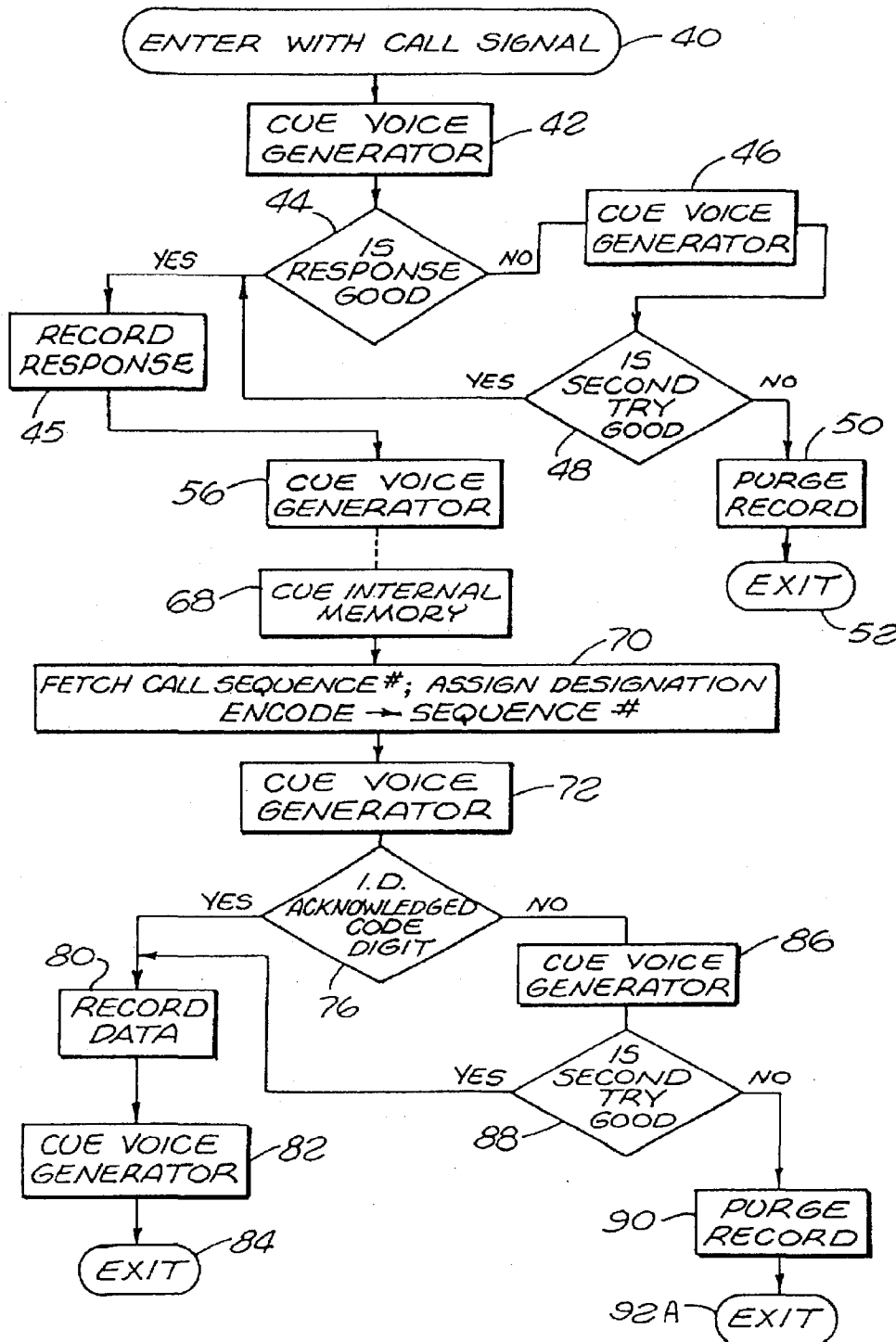


FIG. 3

U.S. Patent

Nov. 4, 1997

Sheet 4 of 6

5,684,863

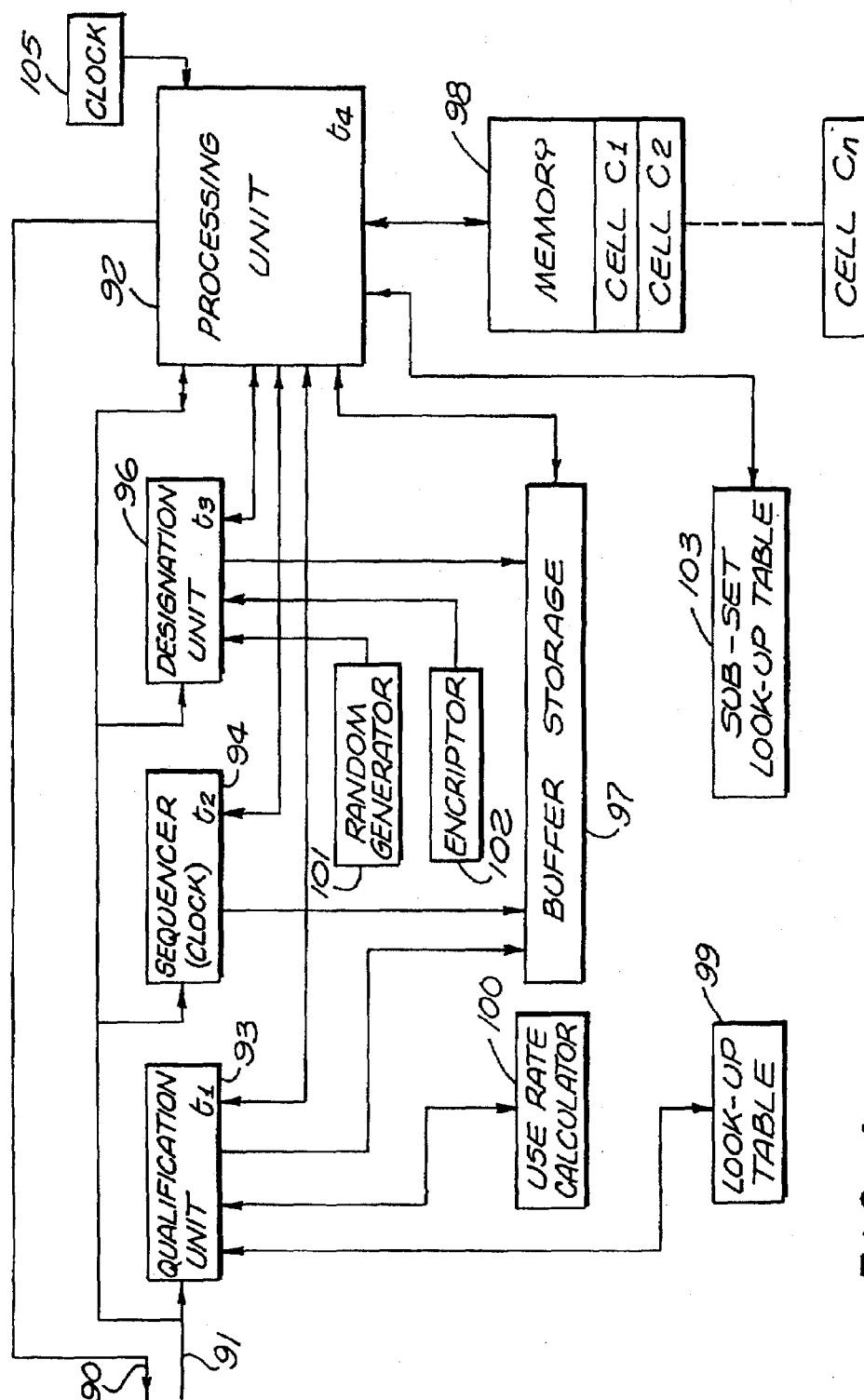


FIG. 4

U.S. Patent

Nov. 4, 1997

Sheet 5 of 6

5,684,863

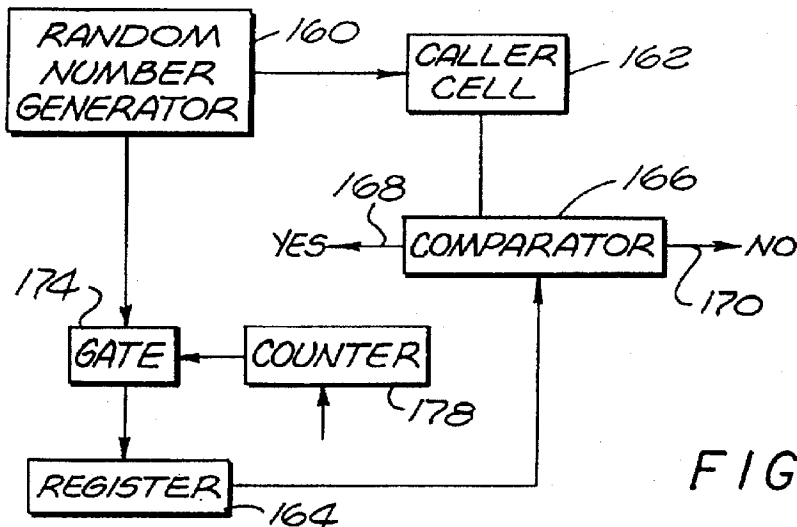


FIG. 6

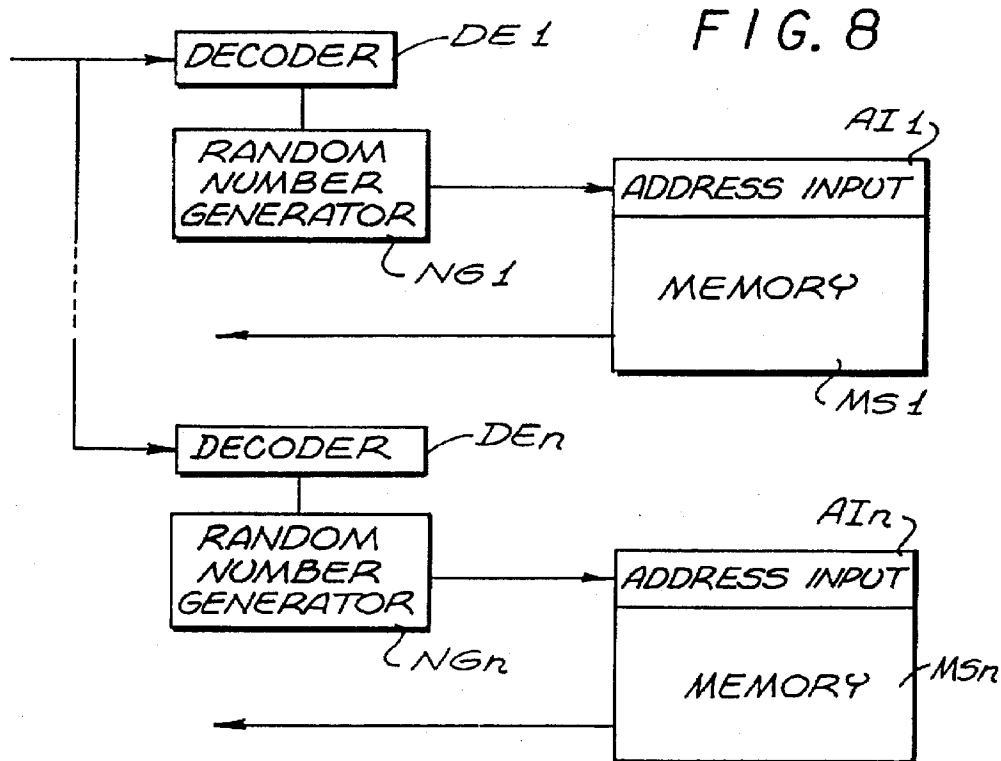


FIG. 8

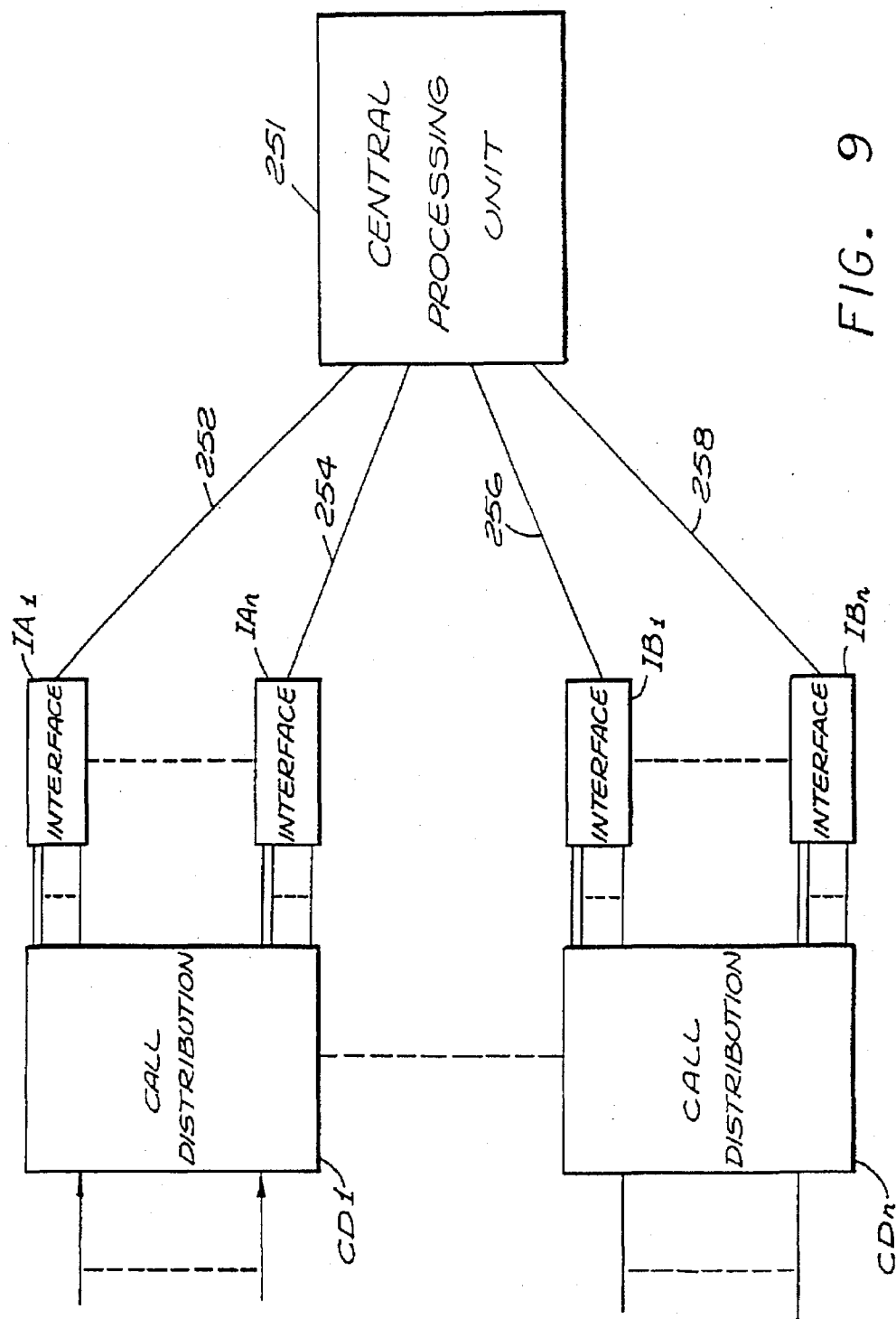
KTL0000065

U.S. Patent

Nov. 4, 1997

Sheet 6 of 6

5,684,863



JA0000470

5,684,863

1

**TELEPHONIC-INTERFACE STATISTICAL  
ANALYSIS SYSTEM**

This is a continuation application of application Ser. No. 07/335,923 filed Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System", which is a continuation of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility", now U.S. Pat. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility", now abandoned.

**BACKGROUND AND SUMMARY OF THE  
INVENTION**

Various forms of publicly accessible communication systems for providing access to a central station have been proposed, some involving telecommunications. However, sometimes a need for ancillary functions arise in that regard, e.g. it may be desirable to positively identify a large group of persons, as a demographically controlled group, or a specifically entitled group, then statistically analyze data from the group so as to accurately identify certain persons in the group and select a subset of at least one person. Specifically, it may be desirable to obtain medical data from an entitled group of people, to correlate such data, perhaps introduce external data, then identify a select subset of the group. In that regard, a need exists for an improved, effective, economical, and expedient system of telecommunication incorporating means for performing qualification, identification, analysis and selection of individual persons.

It has been proposed to interface persons at telephone calling stations directly with a computer facility. In accordance with such arrangements, recorded voice messages prompt callers to provide data by actuating the alphanumeric buttons that are conventionally employed for dialing from one telephone station to another. In one prior arrangement, a caller may actuate dialing buttons to selectively attain a communication channel or to address specific information in a computer. In another arrangement, dialing buttons may be actuated to specify a billing designation as for requested services. Generally, such systems are believed to have been somewhat limited in scope, often involving difficulties that are frustrating or confusing to a caller. Nevertheless, such techniques have been widely used to enhance and broaden communication.

In general, the present invention comprises a telephonic-interface system and related process for selectively utilizing both analog (voice) and digital telephonic communication in a variety of different interface formats or programs, as to select or qualify a set of callers, enable positive identification of at least certain of the callers in the set, acquire data from callers in the set, statistically analyze acquired data, as in combination and in association with external data (time independent), and accordingly to isolate a subset of the callers with verifiable identification. That is, the external data (separate from caller-provided data) may be introduced at any of a variety of different times in relation to the caller data.

For example, a voice origination apparatus may prompt individual callers who (after qualification) provide select digital data to develop a record for further processing either

2

immediately, upon the evolution of a defined set of callers or upon the establishment of select external data. Thus, following a qualification phase, the information acquisition phase may be concurrent or consecutive with respect to the processing phase. When appropriate, abort capability allows a caller to remain "off hook" and go to analog (vocal) communication. The caller then interfaces directly with an operator.

The system of the present invention may qualify an entitled set of callers, then receive answer data in the course of the call and develop identification or designation data, sequence data and statistical data. The system may then provide data cells for storing individual data while assigning confirmable identifications to the entitled set. From the set, a subset is defined. That is, in accordance with various formats, acquired data is processed in statistical relationship, or in relation to applied external data to accomplish such functional operating formats as an auction sale, a contest, a lottery, a poll, a merchandising operation, a game, and so on.

A variety of memory techniques are used to selectively activate the voice origination apparatus. Accordingly, statistical analysis and selection can be effectively and economically accomplished with respect to a substantial set of callers who are accommodated individual communication through a telephone system.

**BRIEF DESCRIPTION OF THE DRAWINGS**

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a system constructed in accordance with the present invention;

FIG. 2 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1;

FIG. 3 is a flow diagram of one operating format of the system of FIG. 1;

FIG. 4 is a block diagram of a form of processor or function unit as may be employed in the system of FIG. 1;

FIG. 5 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1 with the processor of FIG. 4;

FIG. 6 is a block diagram of elements in an operating function unit of FIG. 4;

FIG. 7 is a diagrammatic representation of a storage cell format as may be developed in the system of FIG. 4;

FIG. 8 is a block diagram of elements in an operating function unit of FIG. 4;

FIG. 9 is block diagram illustrating components of the system as spaced apart geographically.

**DESCRIPTION OF THE ILLUSTRATIVE  
EMBODIMENTS**

As required, detailed illustrative embodiments of the present invention are disclosed herein. However, physical communication systems, data formats, and operating structures in accordance with the present invention may be embodied in a wide variety of forms, some of which may be quite different from those of the disclosed embodiments. Consequently, the specific structural and functional details disclosed herein are merely representative; yet in that regard, they are deemed to afford the best embodiments for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

5,684,863

3

Referring initially to FIG. 1, a series of remote telephone-instrument terminals T1 through Tn are represented (left). The terminals are generally similar, and accordingly, only the terminal T1 is illustrated in detail.

In the disclosed embodiment, the remote terminals T1 through Tn represent the multitude of conventional telephone terminals that are coupled to a communication facility C which may take the form of a comprehensive public telephone system for interconnecting any associated terminals T1-Tn. In accordance with the present system, the terminals T1-Tn operate through the communication facility C to be coupled with a central station D, an embodiment of which is illustrated in some detail.

Generally in accordance with the present development, individual callers use the individual telephone stations T1 through Tn to interface the station D through the communication facility C. Callers may be screened or qualified. Also in accordance herewith, the data of individual callers may be collected, correlated and tested in the station D for processing in accordance with various programs and external data. As a consequence, various objectives are accomplished. For example, a select subset of the callers may be isolated and specifically identified, or related data may be processed, or transactions may be actuated. The possibilities for application of the system are substantial and varied as will be apparent from the exemplary structure and functions as described in detail below.

In one operating process format, the public might be polled with regard to locating the specific purchasers of a defective or dangerous product. Alternatively, the public might be polled with the objective of locating persons susceptible to a specific ailment or disease. Public auctions of unprecedented participation are possible. Legal lotteries are enabled that are interesting, effective and very economical on an individual participant basis. The system also might be employed in various game formats or to automate a promotion or mail-order operation, even to the extent of including inventory control as detailed below.

In each functional operating format, the callers may be variously qualified on the basis of entitlement and may be identified for subsequent verification. The callers then may be prompted, either through the interface or externally, to provide appropriate data.

Considering the system of FIG. 1 in somewhat greater detail, it is to be understood that the communication facility C has multiplexing capability for individually coupling the terminals T1-Tn to the central station D on request. In the illustrative embodiment of the system, the communication facility C comprises a public telephone network and the individual terminals T1-Tn take the various forms of existing traditional or conventional telephone instruments.

The exemplary telephone terminal T1 is represented in some detail to include a hand piece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in the conventional configuration. Of course, the hand piece 10 accommodates analog signals while the panel 12 is a digital apparatus. Generally in accordance herewith, the hand piece 10 serves to manifest analog signals vocally to the caller.

In accordance with conventional telephone practice, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry three letters along with a decimal digit. Specifically, the button designated with the numeral "2" also carries the letters "A", "B" and "C". In that manner, the buttons 14 encompass the numerals "0-9", two symbols, and the alpha-

4

bet except for the letters "Q" and "Z". Consequently, the buttons 14 accommodate the entry of decimal data, and to some extent alphabetic data.

The buttons 14 designated with symbols "\*" and "#", along with the numeral "0", can be used by predetermined assignment to represent the letters "Q" and "Z" or any of a variety of other data or command components. Generally, in accordance herewith, the buttons 14 are employed to formulate digital data at the central station D in various formats determined by the instant specific use and operating format of the system.

Considering the central station D in somewhat greater detail, the communication facility C is coupled to interface a series of processing systems P1 through Pn (FIG. 1, left). Specifically, the communication facility C is connected to the processing systems P1-Pn through an associated series of automatic call distributors AC1 through ACn. Each of the automatic call distributors AC1-ACn accommodates one hundred lines from the communication facility C and accordingly, may accommodate and queue up to 100 calls.

Each of the automatic call distributors AC1-ACn may take various forms as well known in the prior art, functioning to queue incoming calls for connection to a lesser number of lines. In the disclosed embodiment, from each of the call distributors AC1-ACn, fifty lines are connected respectively to the individual data processing systems P1-Pn through an interface 20 and a switch 21. Thus, in the disclosed embodiment, each of the automatic call distributors AC1-ACn can accommodate one hundred lines, fifty of which may be active in association with one of the processing systems P.

The processing systems P1-Pn are similar, therefore, only the processing system P1 is shown in any detail. Collectively, the processing systems P1-Pn are interconnected with a command computer terminal CT, at least one interface terminal IT, at least one printer PR and an audio unit AD. The command terminal CT is separately coupled to the audio unit AD.

As represented, the processing systems P1 through Pn each contain a number of individual function units or processors PR1 through PRn. Although various other configurations and arrangements may be employed, the explanation is facilitated by including a plurality of individual function units as treated in detail below.

Considering the processing system P1, fifty lines from the automatic call distributor AC1 are connected to the interface 20, an exemplary form of which may be a commercially available Centrum 9000 unit. The interface 20 incorporates modems, tone decoders, switching mechanisms, DNIS and ANI capability (call data analyzer 20a) along with voice interface capability. Note that the interface may actually perform analysis on data. However, to preserve the disclosed embodiment manageable, major analysis is explained with reference to processors.

Generally, DNIS capability is a function of the communication facility C (composite telephone system) to provide called terminal digital data indicating the called number. ANI capability is a similar function whereby the digital data indicates the calling number with calling terminal digital signals. Both capabilities are available for use with equipment as the interface 20 and to provide control through the call data analyzer 20a.

Accommodating up to fifty independent calls on separate communication paths to the central station D, the interface 20 is capable of providing analog (voice) signals to prompt each caller. Also accommodated are digital signals including

5,684,863

5

the DNIS and ANI signals. The system contemplates the possibility of utilizing sequences of lines in rotary as well as blocking sequences of lines, the numbers for which command a particular program or operation format of a function unit as disclosed in detail below.

The interface 20 provides the connection of the fifty lines to a switch 21 which is in turn coupled to fifty function units, or processors PR1-PRn. As indicated above, multiple function units, or processors, are described in the disclosed embodiment to facilitate the explanation. Of course, non-parallel techniques and multiplexed operations might well be employed as alternatives. For a similar reason, as disclosed herein, each of the processors PR1-PRn includes memory cells for each of the callers' individual data. Development and compilation of data in such cells according to various operating formats is described below. In the disclosed embodiment, the processors PR1-PRn are connected collectively to the command computer terminal CT (incorporating a CRT display), the interface terminal IT, and the printer PR. Note that the CRT display serves to visually display data regarding select subsets as explained in detail below.

Exemplary detailed structures for the processors PR1-PRn are described below; however, in general, the units may comprise a microcomputer, for example, programmed as suggested above and as disclosed in detail below to accomplish specific operating formats. As an integral part of such formats, a caller may be qualified as belonging to an entitled set of persons or to accommodate specific demographic objectives. Also, callers may be designated both with respect to their significance and their identification. For example, callers may have different significance in a format, depending on the time or sequence of their call. Also, the designation of a caller may be exceedingly important in relation to the caller eventually being isolated as part of a subset, the members of whom must be accurately verified. As described below, the designations may involve multiple elements which may include: random number assignments, encryption techniques, utilization of calling numbers, identification data, sequence of call and so on to facilitate reliable verification. Note that the communication facility C has a customer billing structure B that is interfaced by the system.

On the qualification and designation of callers, the system enters a data accumulation phase during which digital data (formatted at one of the telephone terminals T1-Tn) is processed by one of the processors PR1-PRn. In general, the processing evolves a subset (at least one caller) the members of which may be verified and confirmed.

Either during the data accumulation phase, or after the processing phase to isolate a subset, a distinct operation may involve actuating the interface terminal T1 for direct local communication between the caller and an operator at the terminal T1. Another distinct operation may involve actuation of the printer PR to provide documents in relation to the operating format, as for providing award certificates as for verifying members of an isolated subset. Also, charge slips may be generated containing at least part of the data of a particular transaction.

An appreciation of the philosophical operation of a system in accordance with the present invention may now be enhanced by considering an exemplary operation of the illustrative embodiment of FIG. 1 to isolate a subset of people who are susceptible to a particular disease or infirmity. The exemplary operation might involve a geographical area, as a large city or population center, in which a

6

particular health problem is somewhat acute. For example, a major population center might be polled where coronary artery disease is a significant problem. Accordingly, persons most susceptible to such disease could be identified for corrective recommendations.

People of the population center could be informed of the availability of a service for statistical health analysis. Accordingly, persons interested in their individual statistical situation would be motivated to utilize the service. Specifically, individual callers would use the remote terminals T1-Tn to contact the central station D through the communication facility C and thereby provide personal information that would enable a statistical analysis in relation to existing data so as to isolate and inform (either real time or batch basis) those persons statistically most likely to be in need of corrective measures. In such applications, it may be important that the caller's identity be subject to reliable verification. Other applications or programs also may present a critical need for positively verifiable identification to the extent that credit card numbers and/or personal identification numbers may be employed.

An exemplary operation of the system, with regard to a specific caller, will now be treated referring somewhat concurrently to FIGS. 1, 2 and 3. As indicated above, FIG. 2 indicates a data storage format for a memory cell in an exemplary processor PR and now will be considered with regard to an operating format in which data is composed for a caller. Pursuing the above example, assume the existence of a caller at the remote terminal T1 (telephone number (213) 627-2222) who wishes to pursue health-related information on the basis of statistical analysis. The caller lifts the hand piece 10 and in accordance with conventional techniques actuates the push buttons 14 to call for a select operating format, e.g. telephone number (213) 627-3333 and thereby establish communication through the facility C with a designated function unit in the central station D. Receiving the call signal, the automatic call distributor AC1 associates the called number ((213) 627-3333, rendered available using standard telephone DNIS techniques) through the interface 20 and the switch 21 to attain connection with the specific processor, e.g. the processor PR1 formatting the health-related program. Accordingly, the processor PR1 cooperates with the interface 20 to cue the interface 20 to operate as a voice generator.

The sequence of operations is represented to be initiated in FIG. 3 by the "enter" block 40 which is accordingly followed by a "cue voice generator" command block 42. If the ANI equipment is not employed, the voice generator in the interface 20 formulates speech, a representative form of which might be: "Thank you for participating in the coronary artery disease statistical analysis. Please give us your telephone number by actuating the call buttons on your telephone instrument."

Acting on the instructions, the caller would push the buttons 14 in sequence to indicate his telephone number, e.g. "(213) 627-2222". Alternatively, the interface 20 can accept the calling number ((213) 627-2222) according to its provision by standard ANI equipment of the communication facility C.

The resulting data signals are communicated from the interface unit 20 (FIG. 1) to the processor PR1 for testing the telephone number as valid or entitled. Essentially, the format of a proper number prompts production of a valid or "good" signal. The test is indicated by the block 44 (FIG. 3). If the response is not valid or entitled, for example contains an inappropriate number of digits or has been used to a point of

5,684,863

7

excess, the operation of block 46 is initiated again cuing the voice generator 30 (FIG. 1). The voice generator accordingly instructs the caller, e.g.: "You have not entered a proper telephone number. Please reenter your telephone number by pressing the appropriate call buttons." The caller is then allotted a predetermined period of time to make a proper entry with the consequence that the system moves to a test operation as indicated by the block 48 (FIG. 3). Specifically, block 48 poses the query: "Is the second try good?"

If the caller is again unsuccessful, the system purges the record as indicated by the block 50 and the call is terminated as indicated by the block 52. In an alternative mode, the processor PR1 may abort the interface and couple the interface terminal IT for direct personal communication with the caller. The interchange would then proceed, person-to-person.

If the caller responds with a proper telephone number, the operation proceeds. Specifically, the system sequences to record the response of the proper telephone number as indicated by the block 45. That is, the caller's telephone number is recorded in an assigned specific memory cell identified with the caller. The format of the cell C1 is indicated in FIG. 2. The first portion, section 53, contains a form of identification data, i.e., the caller's telephone number, i.e. "(213) 627-2222".

Note that as explained above, if the second attempt to formulate a proper number is successful, as manifest by the block 48 (FIG. 3), the response recorded at that stage. In either case, exiting from the block 54 (FIG. 3) invokes the next operation of again queuing the voice generator as indicated by the block 56.

As an alternative format, if a selective-group polling operation is performed, or callers are otherwise to be cleared for entitlement as mentioned above, a caller may be qualified by providing a "one-time" key number. The processor PR1 may incorporate a look-up table for proper key numbers which numbers may be coded using any of a wide variety of techniques. As a simple illustrative example, the key may comprise a precise number of digits that always total a particular numerical value.

The system proceeds after the caller is qualified. Specifically, the cue to the voice generator of the interface 20 (FIG. 1) as represented by the block 56 produces a request for further information from the caller with further identification data and answer data. For example, the voice generator might request information by stating: "Please use the telephone buttons to indicate initials of your name."

The detailed operation is not represented in FIG. 3 as it is similar to the operation illustrated by the blocks 42 through 54. However, again, a proper response is registered in the storage cell C1 as illustrated in FIG. 2 by the number "53" also registered in the first section 53 of the cell.

The cycle of obtaining digital information from the caller next is repeated with respect to answer data, i.e. specific health data. For example, as illustrated in FIG. 2, the next section 58 in the cell C1 receives an accumulation of health data, including the caller's age, weight, . . . , pulse rate, and so on. Representative digital numbers are illustrated in FIG. 2.

During the course of the telephonic communication, the processor PR1 formulates identification data for the caller specifically including: the chronological sequence of the call, the assigned designation of the call, and a set of acknowledgment digits for the call. Such data identification is registered in the caller's assigned cell C1 in accordance

8

with the format of FIG. 2 being stored in sections 62, 64 and 66. Note that the data may be stored in a coded interrelationship. For example, the acknowledgment digits may be related to the call record sequence. In the illustrative example, the chronological order number of the caller is 4951. The acknowledge digits may be derived from the sequence number. For example, as illustrated, a coded relationship may be established by adding "two" to each of the individual record sequence digits. Considering the example numerically:

Adding without propagated carries:

4951
<u>2222</u>
6173

Note that the confirmation data as acknowledgement digits can be extremely important, as to communicate with an isolated member of a subset. For example, identification could be published or circulated, as by a television broadcast, then respondents checked by use of confirmation data that may be confidential.

Continuing with the above example, the call chronological sequence registered for the caller is 4951 as represented in the section 62 while the acknowledge digits are 6173 as registered in the section 66. Additionally, the processor PR1 develops an assigned designation number, e.g. designation "4951684", which is registered in the section 64, the acknowledge code or digits, e.g. 6173, being registered in the section 66. These values are formulated in accordance with conventional number techniques during the data acquisition phase. With the exemplary numerals formulated, the operation proceeds.

The processor PR1 (FIG. 1) cues the internal memory. That operation is indicated by the block 68 (FIG. 3). Thus, the processor PR1 fetches the call record sequence number, assigns a designation (if not previously assigned), and encodes the sequence number as the acknowledgment digits (if not previously accomplished). These operations are indicated by the block 70 (FIG. 3).

Next, the processor PR1 (FIG. 1) cues the voice generator in the interface 20, as indicated by the block 72 (FIG. 3) to provide information to the caller. Specifically, for example, the voice generator in the interface 20 (FIG. 1) might signal: "This transaction has been designated by the number 4951684, and is further identified by the acknowledgment digits 6173. Please make a record of these numbers as they will be repeated. Specifically, the designation number is 4951684. The acknowledgment digits are 6173. Please acknowledge this transaction by pressing your telephone buttons to indicate the acknowledge digits 6173." In various applications as those involving security, the order and acknowledgment of callers may be very important. Therefore, data for confirmation associated with the order is important.

The system next proceeds to the test mode as indicated by the block 76 (FIG. 3). If the caller provides the correct acknowledgment digits, the data is confirmed in the record as indicated by the block 80 and is registered in the cell C1 (FIG. 2). Additionally, the voice generator is sequenced as indicated by the block 82 (FIG. 3) to indicate the close of the communication and that the transaction is terminated as represented by the exit block 84.

In the event that a caller cannot confirm his acknowledgment digits, as indicated by the block 76, a repeat operation is performed as indicated respectively by the blocks 86 and



5,684,863

9

10

88. Specifically, the voice generator is queued for a second instructional message. In the event that the second attempt also fails, the data is purged and the call discounted as indicated by block 90 and an exit block 92A. If the second try is successful (test block 88), as indicated by the block 80, the record is perfected as indicated above.

As a result of the likelihood of a large number of calls, as described above, data cells in the processors PR1-PRn (FIG. 1) are developed with specific information indicative of a statistical sampling of the populace of concern. The data of that statistical sampling may be self-generating of specific conclusions with respect to a subset of individuals, and/or supplemental data to clearly manifest a significant subset. For example, the data may indicate a significant departure from an assumed normal characteristic. Such data, accumulated from the polling may be considered by logic comparisons in the computer 22 to select the subset of persons who should be isolated.

In addition to the self-generating conclusions available from the received data, the system may involve the introduction of external data. In the physical fitness example, such external data might take the form of national statistical data. In any event, the processing operation usually involves comparison testing which compares caller data from individual memory cells of the processors P1-Pn (FIG. 1) with test data that is supplied through the command terminal CT.

In the above example, members of the public in general were invited to use the service. A number of alternatives exist which might well impact on the statistical analysis. For example, a list may be preserved by a use-rate calculator to implement a consumable key operation. That is, a user is qualified to a specific limited number of uses during a defined interval.

As another example, callers might be restricted to the purchasers of a specific product as a medical apparatus for measuring blood pressures, heart rates, or so on. In such situations, it will be apparent that the statistical data will be somewhat distorted from an average or normal sampling. Clearly, the processors P1-Pn can be programmed to take into account such considerations. In that regard, the processors might also verify identification data proffered by a caller. Such data might take the form of a credit card number or a personal identification number. Methods for verification of such numbers using computer techniques are discussed below.

As indicated above and detailed below, the system can be programmed or formatted for use in a variety of applications. Preliminary to considering exemplary forms of such applications, reference will now be made to FIG. 4 showing an exemplary structural form for the processors PR1-PRn. From the switch 21 (FIG. 1) a pair of communication lines 90 and 91 are indicated in FIG. 4 (top left). The line 90 provides signals from a processing unit 92 while the line 91 provides signals to the processing unit 92 along with other components as represented in FIG. 4. The separate lines 90 and 92 facilitate explanation.

The processing unit 92 may take the form of a mini-computer programmed to accommodate the functions of various applications, as disclosed in detail below. As indicated above, the system may utilize a plurality of independent function units or processing units, e.g., processing unit 92, operating in a somewhat parallel configuration, or alternatively, a limited number of processors may be driven sequentially to accommodate the functional operations as described.

The input line 91 (upper left) is connected specifically to a qualification unit 93, a sequencer 94 and a designation unit

96, as well as the processing unit 92 as indicated above. The qualification unit qualifies access from a remote terminal T1-Tn to the processing unit 92 as described in detail below. In accordance with various applications or operating formats, the qualification unit 93, the sequencer 94 and the designation unit 96 operate preliminarily with respect to individual callers. Generally, these units qualify or test callers for entitlement, develop a sequence-of-calls record and provide forms of designations for callers that may be authenticated. As described in detail below, the units function in sequence to accomplish such operations and accordingly are each individually connected to the processing unit 92 and a buffer storage 97. Essentially, the buffer storage 97 is illustrated separately from the processing unit 92 along with the unit 93, sequencer 94, unit 96, and so on, again in order to facilitate the explanation. Similarly illustrated are a memory 98 (with cells C1-Cn), a look-up table 103 and a clock 105.

Considering the processor of FIG. 4 in further detail, the qualification unit 93 (upper left) is connected to a look-up table 99 and a use-rate calculator 100. The designation unit 96 (top center) is connected to a random number generator 101 and an encryptor 102.

In view of the above structural description of the system, consideration will now be given to certain specific applications in relation to the operation of the system. In that regard, the operation of the system will next be considered to automate a mail-order facility.

Assume that a caller at a terminal T1 (FIG. 1) dials a specific number to identify a mail order interface with the system of FIG. 1. For example, assume the telephone number "(213) 627-4444" for such an interface. Accordingly the caller dials the number at the remote terminal T1. As a result, the communication facility C couples the terminal T1 through the automatic call distributor AC1, the interface 20 and the switch 21 to a select processor PR1 identified and programmed for a mail-order operating format. Note that the communication facility C provides the dialed number ("(213) 627-4444") to the processing system P1 through well known telephonic equipment DNIS. Accordingly, a program is selected to execute the mail order interface.

As a preliminary action, a voice responder in the interface 20 might be cued by the processing unit to identify the mail-order house and indicate that the order will be taken by computer. Either before or after qualification, the caller might be advised that if he prefers to communicate directly with a person, or needs such contact at any point in the communication, he may accomplish it simply by pushing the asterisk button (\*) at the terminal T1. Such action forms an abort signal that is detected by the processing unit 92 to transfer the communication to the interface terminal IT (FIG. 1). Alternatively, the customer maybe asked (by voice cue) to provide detailed information as name, address, etc. which is recorded for later processing.

After the preliminary information is supplied to a caller, the qualification phase is initiated. For example, the interface 20 might actuate the terminal T1 to announce: "Please indicate the type of credit card you will use for your purchase by pushing the button number 'one' for Mastercharge, 'two' for . . ."

The caller's response, indicating a specific credit card, will be stored in a data cell; however, the data is developed initially in the buffer 97. The format and data for the present example (in the buffer 97) will be explained with reference to a storage block format 104 as illustrated in FIG. 5. The first data block 130 accordingly registers a digit to indicate the card that will be used to support the caller's purchase.

5,684,863

11

Using voice prompt, the interface 20 next instructs the caller to use the telephone buttons to indicate his credit card number and the expiration date of the card. That data is stored in the register 104, specifically in the blocks 132 and 134 as illustrated in FIG. 5.

Next, the caller is asked for his customer number, as it may appear on his catalog. That number is stored in a block 136 of the block format register 104. Note that the caller may not be identified in the files of the mail-order house and in that event, the operation may be shifted to a manual operation to be continued through the interface terminal 11 (FIG. 1) as explained above. For a television-initiated mail-order transaction, other numerical codes might be employed as to key into broadcast schedules. For example, a code might be used to indicate program times and thereby enable evaluation of the productivity of such program times. Such operation may be performed during the designation-phase as described below.

To continue with the explanation of the automated format, assume that the customer has a file customer number and that it is stored in the block format register 104 along with his credit card number and expiration date. From that location, the data is checked by the qualification unit 93 (FIG. 4) for propriety as part of the test or qualification phase of operation. The check or test is in two stages and both are performed during an interval designated t1, the qualification unit 93 operating under control of the processing unit 92.

First, the data is verified as representing valid and proper data formats for the customer's number, the credit card number and expiration date. The second operation involves consulting a so-called negative list to assure that the identified card and customer's number have not been cancelled, as for example in the case of credit cards that have been lost or stolen. Detailed structure for such tests is described in the parent case from which this case continues and may be incorporated in the qualification unit 93.

With the successful completion and verification of the preliminary data in the block format register 104, the qualification phase of operation is concluded and the system next interfaces with the caller to acquire and process data for a specific order of merchandise. Note that in the mail-order operating format, the sequence of the call is not normally significant. However, the sequencer 94 may log the time during a period t2 if deemed worthwhile.

Somewhat as described above in relation to the initial operating format (health poll), the voice generator in the interface 20 prompts the caller through a series of exchanges that load the storage block format register 104 with a merchandise order. Thus, as purchase items are confirmed, the register 104 is loaded as exemplified by the blocks 140 and 142. The interchange continues until the customer indicates he does not wish to order any additional items. The system then operates the designation unit 96 (FIG. 4) during the interval t3 to develop and announce the acknowledgement digits as stored in the block 144 (FIG. 5). The acknowledgement digits serve to identify the order both for the caller and the mail-order house. Accordingly, tracing is facilitated. The data (FIG. 5) is then transferred from the buffer 97 (FIG. 4) to a select memory cell C1-Cn.

During the next interval t4, the processing unit 92 (FIG. 4) isolates data of the cells C1-Cn to facilitate the mail-order process. In that regard, the processor 92 may incorporate structure and processing techniques as disclosed in the parent case.

Of the wide variety of other operating formats and applications in accordance herewith, further examples will now

12

be described with reference to the systems of FIGS. 1 and 4. However, from a consideration of the operating formats treated below, it will be apparent that certain structural elements have reoccurring significance in the combination. Specifically, such elements include the structures: (1) utilizing the called number to select a specific operating format, (2) for screening or selecting callers who will be accepted-based on various criteria, (3) for designating callers in a manner to enable subsequent positive identification and (4) various processing aspects of the data manipulations including the provision of at least a portion of certain ID data provided directly from, the telephone apparatus. With respect to the data processing, distinctive elemental features include the utilization of external data not available during the interval of gathering data, the utilization of an interrelationship between the composite data collected during a data acquisition period, and the operation of utilizing time or sequence of callers to accomplish a subset.

As the next illustrative operating format, an instant lottery system will be described. Accordingly, assume the existence of a legalized state lottery accommodated by the telephone system utilizing a pay-to-dial number ("(213) 976-xxxx") and restricted to a limited number of uses for defined intervals of time. For example, a person might be entitled to play the lottery a limited number of times or to the extent of a limited dollar value during a predetermined interval.

From the terminal T1 (FIG. 1) the caller would actuate the push buttons 14 to establish contact with the processing system P1 and coupling would be through the communication facility C, the automatic call distributor AC1, the interface 20 and the switch 21 as described in detail above. The initial operation then involves qualification of the caller to participate in the instant winner lottery. Again, ANI or caller interface techniques may be employed. If the caller is involved, the interface 20 is actuated by the qualification unit 93 during the operating interval t1 to instruct the caller: "Please key in your telephone calling number". As indicated above, an alternative involves the system simply registering the calling number on the basis of its provision by ANI equipment.

In any event, after the caller's telephone number is registered, the instruction is given: "Participation in instant winner lottery is for persons over twenty-one years of age. Accordingly, please key in the year of your birth". A driver's license or credit card number may be similarly registered to confirm age. Alternatively, the combination of telephone number and date of birth could be used. In any event, the caller's data is registered and the qualification unit 93 then functions to test the data as provided. Specifically, the caller's telephone number is checked in a look-up table 99 to determine whether or not it is a proper and currently valid number for use in the lottery. Concurrently, the number is checked by the use-rate calculator to determine the number of times it has been used in excess of a predetermined number of calls or dollar value to participate in the lottery during a current interval of monitoring.

If the data indicates a qualified caller, the system proceeds to the next phase of designating the transaction. Note that the sequence is not significant in this operating format with the consequence that the interval t2 and the operation of the sequencer 94 may be bypassed. Rather, the designation unit 96 operates during the interval t3 to provide the caller with a designation for the current transaction and if applicable, updates the file as to current use or dollar value remaining for the caller's use. As explained above, the random generator 101 with or without the encryptor 102 may be employed to create an identification number which may

5,684,863

13

include an encrypted form of the caller's telephone number. Accordingly, data for the transaction is established in the buffer 97 then set in a cell of the memory 98 (FIG. 4). Specifically, the completed data cell format might be as follows: Telephone No.-Birth Year-Designation-Random No.

The system next functions to generate the random number as indicated above which will then be tested against a series of other numbers to determine whether or not the caller is a winner. In that regard, elements in the processing unit 92 which accomplish the operation are illustrated in FIG. 6 which will now be considered in detail.

A random number generator 160 functions on command to provide a three-digit number. With the consummation of a call, the random number generator 160 is actuated to provide the caller's random number in a selected caller cell 162. From that location, the caller's random number is compared with numbers from a register 164 by a comparator 166. The numbers in the register 164 were previously passed through a gate 174 from the generator 160. In the event of coincidence, the comparator provides an output "yes" signal to a line 168. Conversely, the failure of coincidence prompts the comparator 166 to provide a "no" output to a line 170. Essentially, a "yes" indicates a win while a "no" indicates the caller has lost.

The elements of FIG. 6 provide a random operating format to determine winners on a somewhat statistical basis; however, the system increases the probability with the passage of time when no win occurs. In that regard, at the outset of an operating cycle, the random number generator 160 provides a random number that is passed through the gate 174 to the register 164. In the exemplary format, a three-digit number would be provided. At that stage, the caller's random number, from the cell 162, would be compared with the single number in the register 164 by the comparator 166. However, with the passage of time, calls are tallied or time is metered by a counter 178. Accordingly, upon the attainment of a predetermined count, the gate 174 is again qualified to enter another number in the register 164. Accordingly, an increasing set of numbers are held in the register 164 for comparison with each caller's number. Of course, the more numbers in the register 164, the higher probability of a caller winning and that relationship depends upon the duration or number of calls since the last winner.

Either a win or a loss as indicated within the processing unit 92 (FIG. 4) prompts the interface 20 to respond appropriately to the caller announcing his results. If there is a win, the designation may be reinforced and additional identification may be taken as explained above. Of course, if the prize simply involves a credit on the caller's telephone bill or his credit account, identification and designation become less critical considerations.

In the event of substantial awards to be claimed, the processing system P1 (FIG. 1) may actuate the printer PR to produce a positive identification of the winner, which document may be redeemed only by the caller providing the assigned designation along with confirmation of his identification data.

Generally in relation to awards, the processing unit 92 may also utilize a random number format for determining the significance of awards. That is, a random number may be actuated to provide numerals from one through twenty, for example, the magnitude of the number generated for a caller indicating the significance of his award. Normally such information would be provided to the caller and registered in his memory cell.

14

With respect to memory cells generally, it is to be noted that actuated memory cells may be cleared for callers who are not winners. Accordingly, a limited number of memory cells store the subset of winners for subsequent confirmation processing and so on.

As another operating process format in accordance with the present invention, consider an auction sale. As disclosed herein, the auction format is associated with television as, for example, in the form of a cable channel for dedicated use during an interval of an auction sale.

Preliminarily, in accordance with the disclosed exemplary format, persons wishing to participate in the auction sale would make preliminary arrangements involving utilization of the system to establish authorization data for qualified bidders in cells C1-Cn of the memory 98 (FIG. 4). In an alternative format, the bidders could simply be qualified immediately before bidding, as on the basis of a charge-card number or other identification.

Generally, it is contemplated that callers are coupled into the system only during the bidding on specific items of merchandise. Accordingly, some prequalification may be desirable to facilitate the rapid accumulation of a bidding group with the introduction of a unit of merchandise.

In accordance with the disclosed format, an auctioneer conducts the sale in a somewhat traditional manner, recognizing that he is interfacing a relatively large audience through the system of the present invention and with a television connection. Specifically, the auctioneer is cued as to audience reaction by a monitor incorporated in the command computer terminal CT (FIG. 1). Essentially, the auctioneer is given an abstract or summary of the relative bidding as the auction progresses. In one format, the caller sees the auction on a television receiver. That is, the monitor may be covered by a television camera to inform the audience and particularly interested bidders. Consider the detailed steps of the operation.

As the auctioneer announces the next item for sale, it is televised to potentially interested bidders. In addition to being informed of the merchandise, potential bidders might also be reminded of the telephone number for participating in the auction. Accordingly, any interested person at a remote terminal T1-Tn may dial the auction number and obtain access to the processing systems P1-Pn. The caller would have a television set available, tuned for example to a cable channel.

Any preliminary qualification as indicated above will then be performed along with any appropriate designation. With regard to the designation, unless callers are identified as part of the qualification step, the designation unit 96 (FIG. 4) assigns a limited-digit number to individual callers for use by the auctioneer interfacing the command computer and terminal CT. Further designation and sequencing as disclosed herein also constitute part of the process. To the extent that qualification and designation operations may be performed, the operations are performed as described above with reference to FIG. 4 by the qualification unit 93 and the designation unit 96. Of course, any of the safeguards and limitations as described herein may be employed as deemed appropriate for an auction format.

After the preliminaries, the auctioneer initiates the bidding with respect to a particular item that is observed by the callers on a television receiver as through a cable channel. Note that the audio may be variously-coordinated through the telephone communication facility C and the audio channel of the caller's television. In a simple format, after an introductory phase, communication to callers with respect to

5,684,863

15

the bidding is provided through the television link. Alternatively, the audio unit AD (FIG. 1) may be employed.

Essentially, the auctioneer initiates the bidding by stating an initial value for the opening bid. Callers are invited to bid by actuating the push buttons 14 (FIG. 1). For example, the auctioneer may invite an initial bid of one hundred dollars asking callers to so bid by entering an asterisk (\*) by punching the button so designated. In accordance with one operating format, cells in the memory 98 (FIG. 4) are actuated to register the bidding number in identified relationship with several calls. Note that although a record may be desirable, it is not usually necessary to record all bids, particularly at initial bidding figures. In any event, the individual processing units, e.g. unit 92 in individual processors PR1-PRn are interconnected (FIG. 1) and operate to select the final and key bids.

After attaining the initial bid, the auctioneer may invite further bidding by seeking a bid of two hundred dollars or any bid. Such a bid might be accomplished either by punching the asterisk button to attain the solicited bid, or by using number buttons to enter a different bid, e.g. two hundred fifty by buttons "2", "5" and "0". Again, cells of the memory 98 are actuated to record select bids (sequence) at the higher value.

The status of the bidding is presented to the auctioneer by the monitor of the command computer terminal CT (FIG. 1). Specifically, the auctioneer is provided an indication of the number of bidders at each level. If a sizeable number of callers bid at a specific value, the auctioneer may wish to advance the price significantly for the next round of bidding. Thus, the auctioneer proceeds until a small group of remaining callers are addressed. Note that the display of the command terminal CT (FIG. 1) may also inform the auctioneer of fresh bidders.

As the selection process proceeds, signals from the clock CL (FIG. 1) are introduced to indicate the sequence of bidders. For example, assume the bidding has proceeded to a stage where only three bidders remain active. The auctioneer is informed by the command terminal CT of the order in which the callers made their bids. The sequence is also of record in the cells of the memory 78 (FIG. 4) to indicate the sequence in the event that the final bid involves more than one caller. Of course, the first caller to respond with a bid would have priority in the purchase.

Normally at the conclusion of the bidding on a particular item, the contents of the cells in the memory 98 would be purged with only the final bidders being held in general memory within the processing unit 92. Of course, it is important to maintain a record of back-up bidders in the event the sale is not consummated with respect to the first of the highest bidders. That is, a subset of the highest bidders is preserved for each item of merchandise in the event that the highest bidder fails to qualify or the sale otherwise cannot be consummated. Of course, a distinct advantage of the system is the ability to accommodate a vast auction participation group for items of substantial value and as a consequence the distillation of a subset of callers is exceedingly valuable information.

To consider another operating format in association with the television media, a system will now be described whereby television viewers participate on a real-time basis in a game show for prizes. The ability to involve television viewers in a program has the potential of expanding program interest along with the expanded participation.

Game shows in accordance herewith may take any of a wide variety of forms as several well known programs in

16

which studio contestants compete for prizes. In utilizing the system of the present invention to involve remote participants, it may be desirable to preliminarily qualify and designate callers as explained above. Specifically, prior to participating in an actual game show, interested participants interface the system as depicted in FIG. 1, and in the course of an exchange as described above, the qualification unit 93 and the designation unit 96 cooperate with the processing unit 92 to accomplish preliminary data on potential participants in cells of the memory 96.

Various games will involve different screening processes and clearances. For example, a child's television game format may require parental clearance and in that regard written communication may be required for approvals. Such approval may require the assignment of a personal identification number to the child player as qualifying identification data.

As explained above, clearances may be perfected through the look-up table 99 (FIG. 4) in association with the qualification unit 93 or approvals through a consumable key step may be extended to incorporate functions of the processing unit 92 in association with the memory 98. For example, if qualification simply involves a check-off operation, the look-up table 99 will normally be employed. However, in the case of preregistration for a participant, as in the case of the auction sale, the memory 98 is involved with the qualification unit 93 through the processing unit 92 to establish a data cell C1-Cn for each qualified participant. Thus, each potential participant to be qualified interfaces with the processing unit 92 during a preliminary interval of operation to provide data in one of the cells C1-CN to facilitate qualification for participation during a real-time game show.

At the time of the show, callers are qualified simply by reference to their assigned memory cell data for a verification. Thereafter, the caller's exchange information to supplement their data as with respect to the play which follows. Specifically for example, a caller might select a studio audience participant with whom the caller is to be allied. The interface operation may be essentially as described above wherein a voice generator in the interface 20 (FIG. 1) provides signals which activate the remote telephone unit to speak the instruction: "If you wish to play with Player No. 1, please push button No. 1; if you wish to play with Player No. 2, please push button No. 2 . . . and so on". The caller may also be instructed to indicate the extent of a wager. For example, "Push the number button indicating the points you wish to risk".

The participant data is stored in an assigned cell of the memory 98 (FIG. 4) for the caller and as the game proceeds, the processing unit 92 tallies the caller's score. Scores are interrelated between individual processing units to actuate the terminal CT. Thus, individual accounting occurs for each of the calling participants on an on-line basis dependent upon the success of the studio players and their association with the callers. On-going accounting data may be provided at intervals or real time by the recorded voice to each contestant.

According to the described format, after an interval of play, the processing units, as the unit 92 (FIG. 4), operate to isolate a subset of caller-players who have amassed the highest scores. Of course, various arrangements may be provided for awarding prizes to the select subset of winning callers.

The above format involves a real-time game show with an on-line operating format. A somewhat similar format

5,684,863

17

involves nonreal-time operation and in that sense, callers may interface with the system of the present invention before and after the show; however, not primarily during the show. Such a show might involve a quiz for callers based on their ability to perceive and remember occurrences within the show. Preregistration may be employed, however, is not essential. Rather, callers may call after the broadcast of a program. In that event, sequence or time clocking may be very important to limit or control individual interfaces to a specific time or geographic "window". That is, as suggested above, allocation-routing equipment and techniques may be employed in various of the formats to window callers. With the system, callers are screened or qualified at the time of a call, identified in a particular calling sequence, designated for identification and quiz answers are given for subsequent processing. Alternatively, players could participate by providing their credit card for billing or be billed through the "pay-to-dial" network. Consider an exemplary format.

A key to participation in the game show may involve the purchase of a particular product. For example, a person desiring to participate may purchase a product which carries a concealed key number. The number serves as a caller's key to participation in the game show.

In accordance with the disclosed operating format, after watching the broadcast of a television show (possibly a serial episode) the participant actuates the push buttons 14 at one of the remote terminals T1-Tn to accomplish an interface communication with the select operating format. For example, the caller may actuate the buttons 14 for the station number "277-7777" which identifies the game format of current description.

Assume responsive operation of the communication facility C to couple the caller through the automatic call distributor AC1 to the interface 20. Upon establishing a connection, the interface 20 receives the caller's telephone number through ANI equipment and a data cell in the memory 98 (FIG. 4) is assigned to the caller. Specifically, for example, associative coupling is provided for the caller through the switch 21 (FIG. 1) to the processor PR1 containing the memory 98 (FIG. 4) and a cell C2 assigned to the caller. A block format 200 is illustrated in FIG. 7 indicating the data that is developed in the cell C2. At the outset, the caller's telephone number is stored in a section 201 followed by uses/month in section 202.

Next, the caller is greeted and requested to give the key number entitling him to participate in the game show. The instruction constitutes an initial action to take place in an interval of qualification during the time t1. The caller actuates the buttons 14 providing digital representations to the qualification unit 93 (FIG. 4) and the look-up table 99 is consulted. Note that the table 99 may be a large, shared unit that tabulates each of the key numbers and accounts for their use. If the caller has identified a proper key number, the process proceeds and the key number is accounted, i.e., incremented or decremented to the limit of use if any. Alternatively, a repeat information operation may be requested as described in detail above.

As a further check during the qualification stage, the use-rate calculator 100 may function to determine whether or not an excessive number of calls have originated from the designated number. Thus, consideration involves calls or value with reference to a predetermined period of time. Again, a shared calculator may be used or addressing may obtain selectivity on the basis of calling numbers. If a large number of calls have originated from a single telephone terminal, a fraudulent situation may be suggested. Assuming

18

no such indication occurs, the number of uses is registered in a section 200 (FIG. 7) and the operation proceeds from the interval t1 to interval t2.

During the interval t2, the sequencer 94 registers the precise time of the call in the buffer storage 97, specifically in a section 204 as illustrated in FIG. 7. With the entry of such data, the system passes from the operating interval t2 to t3.

The caller is next asked to identify himself in some specific manner. For example, the caller may simply be asked to provide the year of his birth. Alternatively, somewhat Comprehensive information may be taken as in the form of drivers' license numbers, social security numbers and so on. Of course, such data may be employed for subsequent identification of the caller and, accordingly, is registered in the buffer storage 97 (FIG. 4). Specifically, identification information is registered in section 206 of the block 200 as shown in FIG. 7.

In addition to receiving identification information from a caller, the system assigns a designation to the caller. Specifically, the random number generator 101 (FIG. 4) provides a number which may be encrypted along with other identification data as the caller's personal identification to provide a numerical designation that is registered in the storage 97. Specifically, the designation is stored in a section 208 as illustrated in FIG. 7. With the designation operation complete, the interval t3 terminates initiating the data accumulation phase which occurs during an operating interval t4.

At this juncture, operating elements within the processing unit 92 will be considered in relation to an explanation of the manner in which select questions are provided to a caller and his answers received and recorded for subsequent processing to determine winners.

Preliminarily, reference will be made to FIG. 8 showing elements involved in the operating format which are contained in the processing unit 92 (FIG. 4) in association with the memory 98. To avoid confusion, the elements identified in FIG. 8 are designated by fresh numerals.

To accommodate the exemplary operating format, a dramatic program might be recorded preparatory to the television broadcast. A substantial number of questions would then be formulated based on the dramatic program. For example, "How many people were present when the will was read?"

It is contemplated that the dramatic program would be broadcast to different geographical segments of the country during different time intervals. To accommodate the different time intervals, it is proposed to utilize different questions for each geographic segment. That is, the basic format can remain the same, only the questions change by time zone to avoid study and collaboration on questions as a result of time shifts. A question propounded to a Chicago caller should not be repeated to a Los Angeles caller. In any event, callers might be given three questions randomly drawn from a pool serving one geographic segment and three questions drawn from a different pool serving another geographic segment.

The signals for prompting a voice generator are registered in memory sections MS1 through MSn. Each of the memory sections MS1-MSn is served by an address input A11-A1n respectively. Similarly, the address inputs A11-A1n are instructed by random number generators NG1-NGn, in turn actuated by decoders DE1-DEn. Consider the operating sequence of the memory MS1 as an example.

The decoder DE1 is responsive to telephone calling numbers (provided by ANI equipment) indicative of a particular geographic area. Note, for example, that area code

5,684,863

19

numbers afford an effective geographic classification of callers which is very useful in many formats or processes of statistical analysis in accordance herewith. Note that geographic (or other) classification in accordance herewith is also accomplished by the called numbers provided. Each of several television stations would solicit calls for different numbers as a result, either by DNIS or call channeling. Select processors would be reached through the interface units, e.g. interface 20 FIG. 1. In operation, the decoder DE1 determines a call is from a specific geographic area and accordingly provides a signal to actuate the random number generator NG1. As a consequence, the random number generator NG1 provides a series of three random numbers in the form of addresses for the memory MS1. That is, the addresses may simply comprise three alphanumeric bits supplied to the address input A11 to prompt the provision of three sets of voice generator signals for announcing the three questions in sequence. For example, the first question might be as suggested above: "Push the button on your telephone for the number of persons present in the room when the will was read".

The voice generator signals are supplied from the memory MS1 (within the processing unit 92, FIG. 4) to the interface 20 (FIG. 1) which generates audio signals to actuate the caller's hand piece 10. Accordingly, the caller is instructed to answer three questions, the responses being recorded in a section 210 of the data block 200 (FIG. 7). Note that the clock 105 (FIG. 4) may be utilized to limit the response period allowed each caller.

As indicated above, to accommodate broadcast of the program in a different time slot for a different geographic area, the decoder DEn (FIG. 8) actuates the random number generator NGn to address the memory MSn to provide three different questions as a result of a random selection. Accordingly, within a time or times (perhaps limited and offset) after the conclusion of the program, a substantial number of callers are accounted for in cells of the memory 98 and similar units of the composite system. The cells indicate sequences of calling and also may contain billing data where appropriate. That is, pay-to-dial operations avoid the need for billing, yet it may still be made of record.

Subsequent to the data accumulation phase of operation, the processing unit 92 (and its equivalents) is actuated during an off-line processing interval to isolate the subset of callers correctly responding to the questions. In accordance with one format, the subset of successful callers may be reduced to a sub-subset as by a random computer "draw" to define a group of significant winners. That is, a random number generator may be employed as explained above.

As an alternative to subsequent processing, the system may inform callers of their success during the course of the interface telephone call. That is, callers might simply be informed by cuing the voice generator: "Your answers are correct and in accordance with the program game, you will now be entered in the sweepstakes draw for the prize. . . ." Thus, the format defines a subset then further selects a sub-subset of winners. In any of the various formats, the status of the analysis can be televised by selecting a camera focused on the interface terminal IT.

Still another operating format for the system takes the form of polling operations to determine opinion or facts. An illustrative form of the format is disclosed below again in association with a television broadcast.

Generally, the illustrative polling format is contemplated in association with a television broadcast addressing a matter of current interest as, for example, a political issue or

20

election. A master of ceremonies propounds questions to a viewing audience, many of whom are on-line through an interface of a system of the present invention. The master of ceremonies or commentator instructs the callers who are regulated and controlled by the system of the present invention to provide digital data which the system processes to inform the commentator as with regard to subsets of callers. For example, the commentator may be statistically informed as to the numbers of callers holding specific views. Consider a specific exemplary operating format.

Assume the existence of a system in accordance with the present invention installed for use in association with a television broadcasting facility. Of course, various previous arrangements could be involved; however, according to one arrangement a commentator simply invites members of the viewing audience to call a specific number and express their views with respect to a specific issue. Callers located at terminals T1-Tn (FIG. 1) activate the terminals to accomplish an interface with one of the processing systems P1-Pn as explained above. Note that the processor (or the interface 20) may involve operation of the qualification unit 93 (FIG. 4) to prevent callers from loading the poll. That is, to prevent multiple calls from a single terminal that would distort a poll, the qualification unit 93 registers calls in association with the use-rate calculator 100. Interfacing a specific processor, callers are screened by the qualification unit 93 (FIG. 4). In such a poll, it may be important to control the sampling group on a statistical basis. For example, it may be desirable to limit callers from each of several geographic areas. Accordingly, by the use of ANI equipment, the caller's telephone number is provided to the qualification unit 93 during the preliminary interval t1, and a determination is performed with regard to the number of involved callers from the geographic area using the look-up table 99. On attaining a full quota from a specific area, a subsequent caller may be informed that the lines are full. Alternatively, the caller may be requested to provide his telephone number for screening in the event ANI equipment is not available.

The caller may be requested to provide additional information so as to poll a balanced group. For example, a caller might be asked questions concerning age, political registration and so on by prompting the interface unit 20 to pose audio questions and testing the digital results through the qualification unit 93 as with reference to the look-up table 99.

As indicated above, in the event that the broadcast television program is one of a series, it may be desirable to limit the extent of participation over a period of several programs. Accordingly, the use-rate calculator 100 (FIG. 4) may be employed in association with the qualification unit 93. That is, if a calling number has participated in a prior poll, it may be denied access for a subsequent poll or its data not counted. Such operation would involve the use-rate calculator 100 in association with the qualification unit 93 performing logic tests to actuate the voice generator of the interface 20 for providing an appropriate interchange with a caller.

With the screening or qualification of a select group of callers, the sequencer 94 (FIG. 4) may or may not be involved to identify the order of callers. Also, the designation unit 96 may or may not be involved in view of the fact that for many polls there is little interest in subsequently identifying callers.

In the poll-format operation of the system, it is important to provide a capability of defining select intervals during which callers may provide data. In one arrangement, with

5,684,863

21

the consummation of a communication interface between a caller and a processor unit, the audio of the television broadcast is keyed from the audio unit AD through the switch 21 (FIG. 1) for communication to the caller.

With a multiplicity of callers in interface relationship with the processors PR1-PRn as function units, a polling question is stated, for example: "If you favor expanded trade with . . . at the tone press button one; if you do not, press button two".

To control the interval of polling, the command computer terminal CT (FIG. 1) is actuated to enable the callers timely access to the processors.

At the expiration of a polling interval, the interfaces may be terminated or additional questions may be propounded. In any event, subsequent to the data-gathering phase, the bulk data is supplied to the command computer terminal CT incorporating computing facility to isolate subsets for communication by the broadcast. Accordingly, an effective on-line poll can be conducted with statistical sampling control and prompt display of responses.

As explained above, the arrangement of the function unit (or units) may be variously embodied in a single processor or many processors, depending on various considerations as time sharing, multiplexing, paralleling and so on. The systems as described above embody the components bulked together in one location. However, components of the system could be spaced apart geographically, using dedicated lines or polling techniques. An illustrative embodiment is shown in FIG. 9.

Call distributors CD1-CDn are at different geographic locations along with associated interface units IA1-IA n and IB1-IBn. Each of the interface units, as unit IA1 is coupled to a central processor 251 as indicated by lines 252, 254, 256 and 258. Each of the lines may take the form of a dedicated telephone line or a polling telephonic coupling.

In the operation of the system of FIG. 9, the call distributors CD are coupled to a telephonic communication system and accordingly allow the interface units I to provide interface communication between the central processing unit 251 and a multitude of remote terminals T1-Tn as illustrated in FIG. 1. With data accumulated in the cells, it may be variously down loaded as to a central processing station. Thus, the distributed-component system is capable of executing the various formats as explained above with reference to the illustrative structure.

In view of the above explanation of exemplary systems, it will be appreciated that other embodiments of the present invention may be employed in many applications to accumulate statistical data, process such data, and define subsets of callers of concern. While certain exemplary operations have been stated herein, and certain detailed structures have been disclosed, the appropriate scope hereof is deemed to be in accordance with the claims as set forth below.

What is claimed is:

1. A process for controlling operations of an interface with a communication facility, said process including the steps of: providing products carrying participation numbers specifying limits on use to entitle individual callers to access said operations of said interface with said communication facility; coupling remote terminals to said interface for providing voice signals to said individual callers as to provide vocal operating instructions to said individual callers; receiving digital identification data from said individual callers responsive to said voice signals including said

22

participation numbers for said individual callers and answer data provided from said remote terminals under control of said individual callers;

qualifying said individual callers by testing to determine if said individual callers are entitled to access said operations of the interface based on said limits on use specified by said participation numbers for said individual callers and accordingly providing approval signals for qualified individual callers;

accessing a memory with said participation numbers for said individual callers and storing data relating to calls from said individual callers; and

processing at least certain of said answer data responsive to said approval signals to isolate a subset of said individual callers.

2. A process according to claim 1, wherein a limit on use with respect to each of said individual callers specifies a predetermined number of uses.

3. A process according to claim 1, wherein a limit on use with respect to each of said individual callers specifies a predetermined dollar amount.

4. A process according to claim 1, wherein said communication facility automatically provides called terminal digital data (DNIS) to identify a specific format from a plurality of formats for executing operations of said interface.

5. A process according to claim 4, wherein said communication facility also automatically provides calling terminal digital data to identify said remote terminals.

6. A process according to claim 5, wherein said calling terminal digital data is stored in said memory.

7. A process according to claim 6, wherein said calling terminal digital data is tested to control access to said operations of the interface.

8. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals may comprise a conventional telephone instrument including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing data, said analysis control system comprising:

an interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication, and including means to provide caller data signals representative of data relating to said individual callers developed by said remote terminals and means to receive calling terminal digital data automatically provided by said communication facility;

voice generator structure coupled through said interface structure for actuating said remote terminals as to provide vocal operating instructions to said individual callers;

record structure, including memory and control means, said record structure connected to receive said caller data signals from said interface structure for accessing a file and storing digital data relating to said individual callers provided from said digital input means through said interface structure to store designations of said individual callers including representations indicative of a calling order sequence of said individual callers, said record structure also including a database of stored calling terminal digital data; and

qualification structure controlled by said record structure for restricting the extent of access to said system by said individual callers based on a comparison of said calling terminal digital data against said database of stored calling terminal digital data.

5,684,863

23

9. An analysis control system according to claim 8, wherein said individual callers provide personal identification number data as caller data signals.

10. An analysis control system according to claim 8, wherein said calling order sequence is indicative of caller transaction data.

11. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing data, said analysis control system comprising:

an interface structure coupled to said communication facility to interface each of said remote terminals for voice and digital communication, and including means to provide caller data signals representative of data relating to said individual callers developed by said remote terminals and including means to automatically receive calling terminal digital data from said communication facility;

voice generator structure coupled through said interface structure for actuating each of said remote terminals as to provide vocal operating instructions to each of said individual callers;

record structure, including memory and control means, said record structure connected to receive said caller data signals from said interface structure for accessing a file; and

designation structure coupled to said interface structure and said record structure for developing individual designations for at least certain of said individual callers, indicative of caller significance in order to isolate a subset of said individual callers at calling remote terminals.

12. An analysis system for use with a communication facility including remote terminal apparatus for individual callers, wherein said remote terminal apparatus may comprise a conventional telephone instrument including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing caller data including answer data, said analysis system comprising:

interface means selectively coupled to said communication facility to interface said remote terminal apparatus for voice and digital communication and including means to provide signals values from data developed by said remote terminal apparatus;

voice generator means selectively coupled through said interface means to said remote terminal apparatus for providing vocal operating instructions to said individual callers;

designation means selectively coupled to said interface means for assigning individual designations to said individual callers; and

processing means for processing at least certain of said answer data, and storage means for registering said answer data, said processing means for isolating a subset of said individual callers based on repeated comparisons of said answer data that is registered against said answer data being provided by said individual callers including data associated with said individual callers.

13. An analysis control system according to claim 12, wherein said designation means includes means for storing sequence data indicative of a calling sequence of said individual callers.

24

14. An analysis control system according to claim 12, wherein said voice generator means is driven to prompt certain select ones of said individual callers to provide telephone number data for storage.

15. An analysis control system according to claim 12, wherein said processing means processes said answer data that is registered in combination with said answer data being provided by said individual callers.

16. An analysis control system according to claim 12, further comprising:

transfer means for transferring certain of calls from said individual callers to a terminal attended by an operator.

17. An analysis control system according to claim 16, wherein said operator enters at least certain of said answer data for said certain of said individual callers.

18. An analysis control system according to claim 12, wherein said storage means stores caller provided digital data and voice data.

19. An analysis control system according to claim 12, wherein said answer data includes caller personal identifying data.

20. An analysis control system according to claim 19, wherein said repeated comparisons include processing of multiple personal identifying data including caller age data.

21. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means in the form of an array of alphabetic numeric buttons for providing data, said analysis control system comprising:

interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication and including means to provide signals representative of data developed by said remote terminals and including means to automatically receive called number identification signals (DNIS) to identify one of a plurality of different called numbers;

voice generator structure coupled through said interface structure for actuating said remote terminals as to provide vocal operating instructions to specific ones of said individual callers;

record means, including memory and control means, said record structure connected to said interface structure for accessing a file and storing data relating to said individual callers;

designation means coupled to said interface structure and said record means for assigning individual designations to said individual callers and storing said designations in said record means as part of said data relating to said individual callers; and

encoding means coupled to said record means and said designation means for encoding at least certain of said data relating to said individual callers.

22. An analysis control system according to claim 21, wherein said designation means includes means for storing representations of other data provided by a caller including caller PIN number data.

23. An analysis control system according to claim 22, wherein said other data further includes caller credit card data.

24. An analysis control system according to claim 23, wherein said other data further includes credit card expiration data.

25. An analysis control system according to claim 23, wherein said caller credit card data is verified to approve said caller.



Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000078

5,684,863

25

26

26. An analysis control system according to claim 21, wherein said record means includes means for storing customer number data which is tested to determine if said customer number data indicates negative or canceled status.

27. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein said remote terminals may comprise a conventional telephone instrument including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing data, said analysis control system comprising:

interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication, and including means to provide caller data signals representative of data relating to said individual callers developed by said remote terminals and including means to receive called number identification signals (DNIS) automatically provided by said communication facility to identify a select one of a plurality of different called numbers associated with a select format of a plurality of different formats;

record structure, including memory and control means, said record structure connected to receive said caller data signals from said interface structure for accessing a file and storing certain of said data developed by said remote terminals relating to certain select ones of said individual callers;

qualification structure coupled to said record structure for qualifying access by said individual callers to said select format based on at least two forms of distinct identification including caller customer number data and at least one other distinct identification data element consisting of personal identification data provided by a respective one of said individual callers; and

switching structure coupled to said interface structure for switching certain select ones of said individual callers at said remote terminals to any one of a plurality of live operators wherein said live operators can enter at least a portion of said caller data relating to said select ones of said individual callers through interface terminals, which is stored in said record structure.

28. An analysis control system according to claim 27, wherein said caller data signals include signals indicative of caller credit card number data provided by said individual callers.

29. An analysis control system according to claim 28, wherein said caller data signals further include signals indicative of credit card expiration date data.

30. An analysis control system according to claim 28, wherein said caller credit card number data is verified on-line.

31. An analysis control system according to claim 27, wherein said caller customer number data is tested to determine if caller status is unacceptable or canceled.

32. An analysis control system according to claim 27, wherein said qualification structure qualifies said individual callers to provide access to at least a portion of said system.

33. An analysis control system according to claim 27, wherein said personal identification data is PIN number data.

34. An analysis control system according to claim 27, wherein at least one distinct identification is provided by said individual callers on-line and is stored in said record structure for subsequent use.

35. An analysis control system according to claim 32, wherein said access to at least a portion of said system is provided based upon a computer generated number identi-

fying a previous transaction, said computer generated number indicative of caller transaction order data.

36. An analysis control system according to claim 27, wherein said caller customer number data is calling number identification data automatically provided by said communication facility.

37. An analysis control system according to claim 27, wherein said qualification structure is further controlled by said record structure for testing at least certain of said caller data signals provided by said respective one of said individual callers to specify a consumable participation key for said respective one of said individual callers.

38. An analysis control system according to claim 37, wherein said consumable participation key is comprised of said at least two forms of distinct identification.

39. An analysis control system according to claim 27, wherein at least one of said at least two forms of distinct identification includes social security number data.

40. An analysis control system according to claim 27, wherein at least one of said at least two forms of distinct identification includes caller PIN number data.

41. An analysis control system according to claim 27, wherein at least one other distinct identification data comprises initials data.

42. An analysis control system according to claim 27, wherein said called number identification signals (DNIS) are received by one of a plurality of call distributors.

43. An analysis control system according to claim 42, wherein said plurality of call distributors are at different geographic locations.

44. An analysis control system according to claim 42, wherein said plurality of call distributors are accessed under control of call allocation routing capability of said communication facility.

45. A system according to claim 27, wherein said select format is one form of an order format.

46. A system according to claim 45, wherein said select order format is one form of a television initiated mail order operation.

47. A system according to claim 46, wherein said one form of said television initiated mail order operation further receives and stores at least a portion of calling number identification signals automatically provided by said communication facility.

48. An analysis control system according to claim 27, wherein an additional form of distinct identification is provided by said individual callers on-line and is stored for subsequent use.

49. An analysis control system according to claim 27, wherein said caller customer number is verified against a record of qualified customer numbers and said personal identification data is provided on-line by said individual callers and stored in said record structure for subsequent use.

50. A system according to claim 27, wherein said qualification structure further executes a test for unacceptable customer numbers based upon data developed by said remote terminals indicative of said caller customer numbers.

51. An analysis control system according to claim 27, further comprising:

means for providing computer generated number data indicative of sequence data to said individual callers.

52. An analysis control system according to claim 51, wherein said sequence data indicates caller transaction order data.

53. An analysis control system according to claim 51, wherein said personal identification data comprises caller social security number data.

JA0000483

5,684,863

27

54. An analysis control system according to claim 51, wherein said personal identification data comprises a PIN number.

55. An analysis control system according to claim 51, wherein said personal identification data comprises caller telephone number data.

56. An analysis control system according to claim 27, wherein said select format is identified by said one of said plurality of different called numbers and is a distinct operating process merchandising format for processing of a customer's interactive order.

57. An analysis control system according to claim 56, wherein said qualification structure tests credit for said individual caller.

58. An analysis control system according to claim 57, wherein said qualification structure testing for credit tests said caller customer number data for unacceptable or cancelled credit status.

59. An analysis control system according to claim 58, wherein said qualification structure testing for credit further test by scoring the instant transaction for credit approval.

60. An analysis control system according to claim 56, whereby said individual callers enter data indicative of the item for order.

61. An analysis control system according to claim 60, further comprising:

means for providing computer generated number data indicative of sequence data to said individual callers wherein said sequence data indicates caller transaction order data.

62. An analysis control system according to claim 61, wherein said personal identification data comprises social security number data.

63. An analysis control system according to claim 61, wherein said personal identification data comprises a PIN number.

64. An analysis control system according to claim 63, wherein said personal identification data element is provided on-line for said individual callers and is stored in said record structure for subsequent use.

65. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing data, said analysis control system comprising:

an interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication, and including means to provide caller data signals representative of data relating to said individual callers developed by said remote terminals and including means to automatically receive called number identification signals (DNIS) to identify a select format from a plurality of formats;

voice generator structure coupled through said interface structure for actuating said remote terminals as to provide voice operating instructions to said individual callers;

record structure, including memory and control means, said record structure connected to receive said caller data signals from said interface structure for accessing a file and storing digital caller data relating to said individual callers provided from said digital input means through said interface structure; and

qualification structure for testing caller data signals provided by at least one of said individual callers to specify

28

a consumable participation key, said consumable participation key for use during a single predetermined period of time for restricting the extent of access to at least a portion of said system by said one of said individual callers on the basis of entitlement.

66. An analysis control system according to claim 65, wherein said caller data signals represent a plurality of data elements for identifying a caller or a caller transaction or both.

67. An analysis control system according to claim 66, wherein said consumable participation key is comprised of at least two forms of distinct identification.

68. A process for controlling operations of the interface with a telephonic communication system including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means in the form of an array of alphabetic numeric buttons for providing data and wherein said telephonic communication system has a capability to automatically provide call data signals, indicative of calling number identification data or called number identification data (DNIS) or both, said process including the steps of:

providing products carrying concealed participation numbers specifying limits on use to entitle individual callers to access said operations of the interface with said telephonic communication system;

receiving said call data signals indicative of called number identification data including a called number (DNIS) dialed by a respective one of said individual callers to select a specific operating format from a plurality of operating formats of said operations of the interface;

coupling said remote terminals to said interface for providing voice signals to said individual callers and generating said voice signals for actuating said remote terminals as to provide vocal operating instructions to specific ones of said individual callers;

receiving digital identification data from said individual callers responsive to said voice signals including said participation numbers for said individual callers and answer data developed by said remote terminals under control of said individual callers;

qualifying said individual callers by testing to determine if said individual callers are entitled to access said operations of the interface based on said limits on use specified by said participation numbers for said individual callers and accordingly approving qualified individual callers;

conditionally accessing a memory with said participation numbers and storing data relating to calls from said individual callers;

processing at least certain of said answer data responsive to approving said qualified individual callers; and

providing on-going accounting data to said individual callers at intervals during calls from said individual callers.

69. A process according to claim 68, further including the step of:

updating said limits on use on-line.

70. A process according to claim 68, wherein said qualifying step further limits access by said individual callers to a predetermined period of time on the basis of entitlement.

71. A process according to claim 68, wherein said processing step further includes:

processing at least certain of said answer data provided to questions with respect to a poll.

5,684,863

29

72. A process according to claim 71, wherein said specific operating format is an automated promotional format associated with said specific operating format.

73. A process according to claim 72, wherein said participation numbers are provided in the packaging of said products.

74. A process according to claim 73, wherein said participation numbers are associated with an automated promotion of said products.

75. A process according to claim 74, wherein said participation numbers are concealed within said products.

76. A process according to claim 68, further comprising the step of:

allocating calls from said individual callers through said communication facility to window callers.

77. A process according to claim 68, further comprising the step of:

receiving said call data signals indicative of calling number identification data with respect to all or nearly all of said individual callers.

78. A process according to claim 77, wherein at least a part of said calling number identification data is utilized in said processing step to test for excess use with respect to said specific operating format.

79. A process for controlling operations of an interface with a telephonic communication system including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means in the form of an array of alphabetic numeric buttons for providing data and wherein said telephonic communication system has a capability to automatically provide call data signals indicative of calling number identification data or called number identification data (DNIS) or both, said process including the steps of:

providing products carrying concealed participation numbers specifying limits on use to entitle said individual callers to access said operations of the interface with said telephonic communication system;

receiving said call data signals indicative of called number identification data including a called number (DNIS) dialed by individual callers to select a specific operating format from a plurality of operating formats of said operations of the interface;

coupling remote terminals to said interface for providing voice signals to said individual callers and generating said voice signals for actuating said remote terminals as to provide vocal operating instructions to specific ones of said individual callers;

receiving digital identification data from said individual callers responsive to said voice signals including said participation numbers and answer data provided from said remote terminals under control of said individual callers;

qualifying said individual callers by testing to determine if said individual callers are entitled to access said operations of the interface based on said limits on use specified by said participation numbers and accordingly approving qualified individual callers;

conditionally aborting interaction during said operations of the interface with an individual caller at a remote terminal and coupling said remote terminal to an interface terminal under predetermined conditions for direct personal communication;

accessing a memory with said participation numbers and storing data relating to calls from said individual callers; and

30

processing at least certain of said answer data responsive to approving said qualified individual callers.

80. A process according to claim 79, further comprising the step of:

providing on-going accounting data to said individual callers at intervals during calls from said individual callers.

81. A process according to claim 79, further including the step of:

updating said limits on use on-line.

82. A process according to claim 79, wherein said step of receiving said call data signals includes receiving said called number identification data to identify one form of an automated promotional format associated with said products as said specific operating format.

83. A process according to claim 79, wherein said step of qualifying based upon said limits on use takes place on-line.

84. A process according to claim 79, wherein said processing step further includes:

processing at least certain of said answer data provided to questions with respect to a poll.

85. A process according to claim 79, wherein said participation numbers are provided in the packaging of said products.

86. A process according to claim 85, wherein said participation numbers are associated with an automated promotion of said products.

87. A process for controlling operations of the interface with a telephone communication system, said process including the steps of:

providing products carrying participation numbers concealed within the packaging of said products, said participation numbers specifying limits on use to entitle individual callers to access said operations of the interface with said telephone communication system;

coupling remote terminals to said interface for providing voice signals to said individual callers and generating said voice signals for actuating said remote terminals as to provide vocal operating instructions to specific ones of said individual callers;

receiving digital identification data from said individual callers responsive to said voice signals including said participation numbers for said individual callers and answer data provided from said remote terminals under control of said individual callers;

qualifying said individual callers by testing to determine if said individual callers are entitled to access said operations of the interface based on said limits on use specified by said participation numbers for said individual callers and accordingly approving qualified individual callers;

accessing a memory with said participation numbers for said individual callers and storing data relating to calls from said individual callers;

processing at least certain of said answer data responsive to approving said qualified individual callers; and

receiving calling number identification signals from said telephone communication system for said individual callers and utilizing at least part of said calling number identification signals in said processing step.

88. A process according to claim 87, further including the step of:

updating said limits on use on-line.

89. A process according to claim 87, wherein said process is for automating a promotion.

5,684,863

31

90. A process according to claim 87, wherein said step of qualifying further restricts the extent of access during a predetermined period of time to at least a portion of said system on the basis of entitlement.

91. A process according to claim 87, wherein said processing step further includes:

processing at least certain of said answer data provided to questions with respect to a poll.

92. An process according to claim 87, wherein said participation numbers are associated with an automated promotion of said products.

93. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means in the form of an array of alphabetic numeric buttons for providing data and wherein said communication facility has a capability to provide call data signals indicative of calling number identification data and called number identification data for at least certain of said individual callers, said analysis control system comprising:

interface structure coupled to said communication facility to interface each of said remote terminals for voice and digital communication, and including means to provide signals representative of data developed by said remote terminals and for receiving said calling number identification data and said called number identification data (DNIS) to identify one from a plurality of called numbers;

voice generator structure coupled through said interface structure for actuating said remote terminals as to provide vocal operating instructions to said individual callers;

record structure, including memory and control means, said record structure connected to said interface structure for accessing a file and storing data relating to certain select ones of said individual callers in accordance with said calling number identification data;

qualification structure controlled by said record structure for controlling access to said system by said individual callers; and

means for processing at least certain of said data developed by said remote terminals relating to certain select ones of said individual callers.

94. An analysis control system according to claim 93, further comprising:

a plurality of call distributors located at different geographic locations wherein called number identification signals (DNIS) to identify said plurality of called numbers are received at said interface structure through said plurality of call distributors and wherein said communication facility further comprises:

call allocation routing capability to window said individual callers.

95. An analysis control system according to claim 94, wherein said one from a plurality of called numbers corresponds to a select one of a plurality of formats.

96. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing data, said analysis control system comprising:

an interface structure coupled to said communication facility to interface said remote terminals for voice and

32

digital communication, and including means to receive answer data signals provided by said individual callers from said remote terminals wherein said communication facility automatically provides called number identification data signals indicating a called number (DNIS) dialed by an individual caller and said called number is one of a plurality of called numbers;

voice generator structure coupled through said interface structure for actuating said remote terminals as to provide vocal operating instructions to said individual callers;

record structure including memory and control means for storing answer data signals and for receiving identification data signals for specific of said individual callers, said record structure further including means for receiving additional identification data signals on-line for said specific of said individual callers and for storing said additional identification data signals in said record structure for subsequent identification of said individual callers;

means for processing at least certain of said answer data signals relating to select ones of said individual callers; and

qualification structure for verifying said identification data signals for specific of said individual callers against a file of stored identification data.

97. An analysis control system according to claim 96, wherein calling number identification signals automatically provided by said communication facility are received and processed by said system.

98. An analysis control system according to claim 96, wherein said identification data signals comprise caller customer number data.

99. An analysis control system according to claim 98, wherein said additional identification data signals comprise at least one of caller PIN number data, caller initials data, social security number data, or caller telephone number data.

100. An analysis control system according to claim 98, wherein calling number identification data automatically provided by said communication facility is indicative of said caller customer number data.

101. An analysis control system, according to claim 96, wherein said identification data signals include data indicative of caller customer number data and said additional data signals are indicative of caller social security number data.

102. An analysis control system, according to claim 100, wherein said additional identification data signals are indicative of caller PIN number data.

103. An analysis control system according to claim 101, further comprising:

a plurality of call distributors located at different geographic locations wherein called number identification signals (DNIS) to indicate said plurality of said called numbers are received at said interface structure through said plurality of call distributors and wherein said communication facility further comprises:

call allocation routing capability to window said individual callers.

104. An analysis control system according to claim 96, further comprising:

means for providing computer generated number data indicative of caller transaction sequence data and storing said computer generated number data in said record structure.

105. An analysis control system according to claim 104, wherein said computer generated number data is provided in

5,684,863

33

a chronological order to said individual callers during a data acquisition phase.

106. An analysis control system according to claim 96, wherein said one of a plurality of called numbers identifies one of a plurality of distinct operating formats.

107. An analysis control system according to claim 106, further comprising:

qualification structure to test said individual callers on the basis of limits specified on use.

108. An analysis control system according to claim 106, wherein a select one of said plurality of distinct operating formats is an automated ordering format.

109. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means in the form of an array of alphabetic numeric buttons for providing data, said analysis control system comprising:

interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication and including means to provide signals representative of data developed by said remote terminals;

voice generator structure selectively coupled through said interface structure to said remote terminals for providing vocal operating instructions to individual ones of said individual callers;

record memory connected to said interface structure for accessing a file and storing data relating to certain select ones of said individual callers including voice data and digital data developed by said remote terminals;

qualification structure for qualifying said individual callers by testing to determine if at least certain of said individual callers are entitled to access a processing format of said analysis control system;

structure selectively coupled to said interface structure and said record memory for providing computer generated numbers to said individual callers and storing said computer generated numbers in said record memory; and

analysis structure connected to said record memory for processing at least certain of said data relating to certain select ones of said individual callers; and means to control processing formats of said analysis control system in accordance with signals automatically provided by said communication facility indicative of a respective one of a plurality of called numbers (DNIS) for a respective one of said processing formats.

110. An analysis control system according to claim 109, wherein said signals representative of data include credit card or participation number data.

111. An analysis control system according to claim 110, wherein said credit card or participation number data is verified.

112. An analysis control system according to claim 109, wherein one of said plurality of called numbers (DNIS) is a pay to dial number.

113. An analysis control system according to claim 109, wherein one form of a select processing format polls certain individual callers for personal information data.

114. An analysis control system according to claim 113, wherein said personal information data includes physical characteristic data.

115. An analysis control system according to claim 113, wherein said personal information data includes age data.

34

116. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means in the form of an array of alphabetic numeric buttons for providing data and wherein said communication facility has a capability to provide called number identification data (DNIS) and calling number identification data, said analysis control system comprising:

multiple automatic call distributors at geographically distinct locations for receiving calls from said individual callers at said remote terminals;

interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication and including means to receive caller data signals representative of data relating to said individual callers, including caller personal identification data and said called number identification data signals (DNIS) and said calling number identification data provided automatically by said communication facility, said called number identification data signals (DNIS) identifying a select format from a plurality of formats;

voice generator structure coupled through said interface structure for actuating said remote terminals as to provide vocal operating instructions in accordance with said select format to said individual callers and to prompt said individual callers to enter data;

record testing structure connected to receive and test said caller data signals including said calling number identification data and said caller personal identification data against previously stored calling number identification data and caller personal identification data; and analysis structure for receiving and processing said caller data signals under control of said record testing structure.

117. An analysis control system according to claim 116, wherein said communication facility further comprises:

call allocation routing capability to window said individual callers.

118. A process for controlling operations of an interface with a telephonic communication system including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means and digital input means in the form of an array of alphabetic numeric buttons for providing data and wherein said telephonic communication system has a capability to automatically provide call data signals indicative of calling number identification data or called number identification data (DNIS) or both, said process including the steps of:

providing products carrying participation numbers concealed within said products specifying limits on use relating to a dollar amount to entitle said individual callers to access said operations of said interface with said telephonic communication system;

receiving said call data signals indicative of called number identification data including a called number (DNIS) dialed by said individual callers to select a specific operating format from a plurality of operating formats of said operations of said interface wherein at least one of said plurality of operating formats includes an automated promotional format for promoting said products;

coupling said remote terminals to said interface for providing voice signals to said individual callers and

5,684,863

35

generating said voice signals for actuating said remote terminals as to provide vocal operating instructions to specific ones of said individual callers;

receiving digital identification data from said individual callers responsive to said voice signals including said participation numbers and answer data provided from said remote terminals under control of said individual callers;

qualifying said individual callers by testing to determine if said individual callers are entitled to access said operations of said interface based on said limits on use specified by said participation numbers and accordingly approving qualified individual callers;

accessing a memory with said participation numbers and storing data relating to calls from said individual callers;

processing at least certain of said answer data responsive to approving said qualified individual callers; and

providing on-going accounting data to said individual callers, said on-going accounting data for at least one of a plurality of intervals being determined at least in part by said answer data provided by an individual caller during a call and during at least one of said intervals includes real time data provided to said individual caller on-line.

119. A process according to claim 118, further including a step of aborting interaction between said telephonic communication system and said individual caller at a remote terminal during the operations of the interface and coupling said remote terminal to an interface terminal for direct personal communication.

120. A process according to claim 119, further comprising the step of:

providing prompts to said interface terminal during direct personal communication with data relating to said calls from said individual callers.

121. A process in accordance with claim 119, wherein said step of aborting interaction is controlled by the success of said individual caller in accessing said memory.

122. A process according to claim 118, wherein said qualifying step limits access by said individual callers to a predetermined period of time based on entitlement.

123. A process according to claim 118, wherein said step for receiving said call data signals further includes:

receiving calling number identification data.

124. A process according to claim 123, wherein said processing step further includes processing of at least certain of said calling number identification data to test said calling number identification data to prevent excessive use.

125. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice communication means, and digital input means in the form of an array of alphabetic numeric buttons for providing data, said analysis control system comprising:

an interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication, and including means to provide caller data signals representative of data relating to said individual callers developed by said remote terminals;

voice generator structure coupled through said interface structure for actuating said remote terminals as to provide vocal operating instructions to said individual callers;

record structure, including memory and control means, said record structure connected to receive said caller

36

data signals from said interface structure for accessing a file relating to said individual callers including said individual callers' credit card numbers provided from said digital input means through said interface structure;

credit verification structure to verify on-line said credit card numbers wherein said credit verification structure at least verifies that said individual callers' credit card numbers have not been cancelled; and

qualification structure controlled by said record structure for testing caller data signals provided by said individual callers to specify consumable participation keys for restricting the extent of access to at least a part of said system by said individual callers on the basis of entitlement.

126. An analysis control system according to claim 125, wherein said individual callers are prompted to provide certain of said caller data signals to identify said individual callers.

127. An analysis control system according to claim 125, wherein said caller data signals are indicative of initials of name or names.

128. An analysis control system according to claim 125, wherein said caller data signals are indicative of caller social security number data.

129. An analysis control system according to claim 125, wherein said caller data signals are indicative of caller PIN data.

130. An analysis control system according to claim 125, wherein calling number identification signals are automatically provided by said communication facility.

131. An analysis control system according to claim 130, wherein said caller data signals further are indicative of caller social security number data.

132. An analysis control system according to claim 131, wherein said qualification structure restricts said extent of access by each of said individual callers to a single use entitlement.

133. An analysis control system according to claim 125, wherein said qualification structure restricts said extent of access to a limited number of uses.

134. An analysis control system according to claim 125, wherein said interface structure includes means to receive one called number from a plurality of called numbers (DNIS).

135. An analysis control system according to claim 134, wherein said called number identifies one of a plurality of formats.

136. An analysis control system according to claim 125, further comprising:

structure to receive calling number identification data.

137. An analysis control system according to claim 136, wherein said record structure stores said calling number identification data at least in part.

138. An analysis control system according to claim 136, further comprising:

processing structure to process at least certain of said calling number identification data.

139. An analysis control system according to claim 125, wherein certain of said caller data signals provided by said individual callers are stored in said record structure.

140. An analysis control system according to claim 125, wherein said qualification structure restricts said extent of access by each of said individual callers to a single use entitlement.

141. An analysis control system according to claim 21, wherein said individual designations include sequence data and other caller data.

5,684,863

37

38

142. An analysis control system according to claim 27, wherein said individual callers provide said at least one other distinct identification data element on-line and said distinct identification data element is stored for subsequent use.

143. An analysis control system according to claim 109, wherein said computer generated numbers indicate a sequence in which calls from said individual callers occur.

144. An analysis control system according to claim 109, wherein said analysis structure processes at least certain of said data relating to certain select ones of said individual callers to isolate a subset of said individual callers.

145. A process according to claim 2, wherein entitled individual callers are only allowed access during a predetermined period of time.

146. A process according to claim 3, wherein entitled individual callers are only allowed access during a predetermined period of time.

147. An analysis control system according to claim 11, wherein said caller significance is indicative of a calling order sequence.

148. An analysis control system according to claim 27, wherein said interface structure further receives voice data from said individual callers and stores said voice data for subsequent processing.

149. An analysis control system according to claim 148, further comprising:

analysis structure coupled to said record structure for processing at least certain of said data developed by said remote terminals relating to certain select ones of said individual callers to isolate a subset of said callers.

150. An analysis control system according to claim 149, wherein said qualification structure further comprises test structure coupled to said interface structure for testing data provided by said individual callers specifying a limit on use during a predetermined period of time.

151. An analysis control system according to claim 36, wherein said one other distinct identification data is PIN number data.

152. A process according to claim 68, further comprising the step of:

receiving and storing voice data signals from said individual callers responsive to voice signals provided to said individual callers.

153. A process according to claim 152, further comprising the step of:

subsequently processing said stored voice data signals.

154. A process according to claim 152, further comprising the step of:

storing said digital identification data and said answer data from said individual callers.

155. A process according to claim 68, wherein said individual callers are further qualified by testing said participation numbers to determine whether said individual callers are calling during a predetermined period of time.

156. A process according to claim 155, wherein a clock is used to qualify said individual callers with respect to said period of time.

157. An analysis control system according to claim 68, wherein said select operating format is accessed by a pay to dial number identified by called number identification signals (DNIS) and said another of said plurality of operating formats is accessed by a number other than said pay to dial called number identified by called number identification signals (DNIS).

158. A process according to claim 79, further comprising the step of:

receiving and storing voice data signals from said individual callers responsive to voice signals provided to said individual callers.

159. A process according to claim 158, further comprising the step of:

subsequently processing said stored voice data signals.

160. A process according to claim 158, wherein said data relating to calls from said individual callers includes said digital identification data and said answer data from said individual callers.

161. A process according to claim 79, wherein said individual callers are further qualified by testing said participation numbers to determine whether said individual callers are calling during a predetermined period of time.

162. A process according to claim 161, wherein a clock is used to qualify said individual callers with respect to said period of time.

163. A process according to claim 162, wherein said predetermined period of time is determined by a use-rate calculator.

164. A process according to claim 87, further comprising the step of:

receiving and storing voice data signals from said individual callers responsive to voice signals provided to said individual callers.

165. A process according to claim 164, further comprising the step of:

subsequently processing stored voice data signals.

166. A process according to claim 164, wherein said data relating to calls from said individual callers includes said digital identification data and said answer data from said individual callers.

167. A process according to claim 87, wherein said individual callers are further qualified by testing said participation numbers to determine whether said individual callers are calling during a predetermined period of time.

168. A process according to claim 167, wherein a clock is used to qualify said individual callers with respect to said period of time.

169. An analysis control system according to claim 93, wherein said data relating to certain select ones of said individual callers includes credit card number data.

170. An analysis control system according to claim 169, wherein said data relating to certain select ones of said individual callers includes credit card expiration date data.

171. An analysis control system according to claim 169, wherein said credit card number data is tested against unacceptable credit card numbers.

172. An analysis control system according to claim 93, wherein said interface structure receives voice data which is stored for subsequent use.

173. An analysis control system according to claim 172, wherein at least certain of said data developed by said remote terminals and at least certain of said voice data is used in subsequent processing.

174. An analysis control system according to claim 173, wherein said subsequent processing includes isolating a subset of said individual callers.

175. An analysis control system according to claim 95, wherein said data relating to certain select ones of said individual callers includes credit card number data, which is tested by said qualification structure for entitlement.

176. An analysis control system according to claim 96, wherein said identification data signals are further indicative of caller billing identification data.

177. An analysis control system according to claim 109, wherein said interface structure receives calling number

5,684,863

39

identification data signals automatically provided by said communication facility, which are tested by said qualification structure with respect to a limit on use to determine if at least certain of said individual callers are entitled to access.

178. An analysis control system according to 109, wherein said individual callers provide caller PIN number data online for subsequent identification of said individual callers.

179. An analysis control system according to claim 116, wherein said caller personal identification data is PIN number data.

180. An analysis control system according to claim 117, wherein at least certain of said individual callers are transferred to an operator attended terminal and at least certain of said data entered by said individual callers is displayed at said operator attended terminal.

181. A process for controlling operations of an interface with a telephone communication system, said process including the steps of:

providing key numbers specifying limits on use to entitle individual callers to access said operations of the interface with said telephone communication system;

coupling remote terminals to said interface for providing voice signals to said individual callers and generating said voice signals for actuating said remote terminals as to provide vocal operating instructions to specific ones of said individual callers;

receiving said key numbers as digital identification data from said individual callers responsive to said voice signals and answer data provided from said remote terminals under control of said individual callers;

qualifying said individual callers by testing to determine if said individual callers are entitled to access said operations of the interface by testing said key numbers for said individual callers against stored key numbers to ensure their validity and testing said key numbers based on said limits on use for said individual callers and accordingly providing approval signals for qualified individual callers;

accessing a memory with said key numbers for said individual callers and storing data relating to calls from said individual callers; and

processing at least certain of said answer data responsive to said approval signals.

182. A process for controlling operations of an interface with a telephone communication system according to claim 181, where said key numbers are included in packaging of products.

183. A process for controlling operations of an interface with a telephone communication system according to claim 181, wherein certain of said voice signals provided to said individual callers indicate computer generated number data formed during operations of said interface.

184. A process for controlling operations of an interface with a telephone communication system according to claim 181, where said key numbers are coded.

185. A process for controlling operations of an interface with a telephone communication system according to claim 181, wherein said processing step processes answer data to isolate a subset of said individual callers.

186. A process for controlling operations of an interface with a telephone communication system according to claim 181, wherein said individual callers provide credit card number data as additional digital identification data or said answer data, which is verified and stored in said memory.

40

187. A process for controlling operations of an interface with a telephone communication system according to claim 181, wherein said operations of the interface are in accordance with a select processing format of a plurality of processing formats identified by called terminal digital data signals (DNIS) provided automatically by said telephone communication system, further comprising the steps of:

providing access to said operations of the interface in accordance with said select processing format with a pay to dial number and providing access to said operations of the interface in accordance with another of said processing formats with a number other than said pay to dial number.

188. A process for controlling operations of an interface with a telephone communications system, said process including the steps of:

providing products carrying key numbers for participation specifying limits on use to entitle individual callers to access said operations of the interface with said telephone communications system;

coupling remote terminals to said interface for providing voice signals to said individual callers and generating said voice signals for actuating said remote terminals as to provide voice operating instructions to specific ones of said individual callers;

receiving digital identification data from said individual callers responsive to said voice signals including said key numbers for said individual callers and answer data provided from said remote terminals under control of said individual callers;

qualifying said individual callers by testing to determine if said individual callers are entitled to access said operations of the interface based on said limits on use specified by said key numbers for said individual callers and accordingly providing approval signals for qualified callers;

accessing a memory with said key numbers for said individual callers and storing data relating to calls from said individual callers; and

providing certain of said voice signals to said individual callers to indicate computer generated number data formed during operations of the interface.

189. A process according to claim 188, wherein said computer generated number data is stored in said memory.

190. A process according to claim 189, wherein said computer generated number data is stored in association with said digital identification data.

191. A process according to claim 188, further comprising the step of:

providing said key numbers in packaging of said products.

192. A process according to claim 188, further comprising the step of:

processing at least certain of said answer data to isolate a subset of callers.

193. A process according to claim 188, wherein caller credit card number data is received from said individual callers as additional digital identification data or said answer data.

194. A process according to claim 188, wherein said computer generated number data is indicative of a calling order sequence of said individual callers.

195. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of said remote terminals may comprise a conventional telephone instrument including voice com-



Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000086

5,684,863

41

munication means and digital input means in the form of an array of alphabetic numeric buttons for providing data, said analysis control system comprising:

interface structure coupled to said communication facility to interface said remote terminals for voice and digital communication and including means to provide signals representative of data developed by said remote terminals and including structure to control processing formats of said analysis control system in accordance with signals automatically provided by said communication facility indicative of one of a plurality of called numbers (DNIS) wherein said one of a plurality of called numbers identifies a select processing format from a plurality of processing formats;

voice generator structure selectively coupled through said interface structure to said remote terminals for providing vocal operating instructions to individual ones of said callers;

record memory connected to said interface structure for accessing a file and storing data relating to certain select ones of said individual callers including voice data and digital data developed by said remote terminals; and

analysis structure connected to said record memory for processing at least certain of said data relating to certain select ones of said individual callers to isolate a subset of said callers, wherein processing of said certain of said data includes accumulating multiple different personal identifying data provided by said select ones of said individual callers and considering said multiple different data by logic comparisons to isolate said subset of said callers.

42

196. An analysis control system according to claim 195, wherein certain of said caller data signals provided by said individual callers are stored in said record structure.

197. An analysis control system according to claim 195, wherein said analysis structure provides individual designations including sequence data and other caller data.

198. An analysis control system according to claim 195, wherein said select processing format is accessed by a pay to dial called number received over a pay to dial network and identified by called number identification data signals (DNIS).

199. An analysis control system according to claim 198, wherein at least one other of said processing formats is accessed by a number other than said pay to dial called number and identified by called number identification data signals (DNIS).

200. An analysis control system according to claim 199, further comprising:

qualification structure coupled to said interface structure for qualifying at least certain of said individual callers for access to said select processing format by testing key numbers specifying a limit on use provided by said certain of said individual callers as part of said digital data developed by said remote terminals.

201. An analysis control system according to claim 200, wherein said digital data developed by remote terminals includes personal information data on at least said certain of said individual callers including age data.

202. A process according to claim 122, further including a step of limiting access by a caller to said memory under control of a clock.

\* \* \* \* \*

JA0000491

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000114

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,815,551  
DATED : September 29, 1998  
INVENTOR(S) : Ronald A. Katz

Page 1 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page.

Item [56], **References Cited**, OTHER PUBLICATIONS,  
The following references contain typographical errors:

"The Voice Response Peripheral that Turns Every Touch-Tone Telephone Into A Computer Terminal", Periphonics Corporation — (Brochure) (Undated)

"AT&T 2: Reaches agreement with Rockwell (ROK)", Aug. 26, 1986—(Press Release)  
AT&T: Expands Computer speech system product line, Apr. 14, 1986—(Press Release).

Adams, Cynthia, "Conversing With Computers", Computerworld on Communications, May 18, 1983, vol. 17, No. 20A, pp. 36-44 (Article)

"Bid Results via Voicemail-Flight Deck Crew Members", May 1, 1985 (Script)

Emerson, S.T., "Voice Response Systems-Technology to the Rescue for Business users", Speech Technology, Jan./Feb. '83, pp. 99-103 (Article)

Sagawa, S., et al., "Automatic Seat Reservation By Touch-Tone Telephone", Second USA Japan Computer Conference, 1975, vol. 2, pp. 290-294 (Article)

Mullen, R.W., "Telephone—home's 'friendliest' Computer", Inside Telephone Engineer And Measurement, May 15, 1985, vol. 89, No. 10,—(Article).

Kaiserman, D.B., "The Role of Audio Response In Data Collection Systems", Proceedings of the Technical Sessions, Palais des Expositions, Geneva, Switzerland, Jun. 17-19, 1980, pp. 247-251 (Article)

Imai, Y., et al., "Shared Audio Information System using New Audio Responses Unit" Japan Telecommunications Review, Oct. 1981, vol. 23, No. 4, pp. 383-390 (Article)

Column 4.

Line 8, "the, numeral" should be -- the numeral --.

Line 42, "As represented;" should be -- As represented, --.

Column 6.

Line 2, "geographical-area" should read -- geographical area --.

Column 7.

Line 28, "manifest" should be -- manifested --.

Line 31, "queuing" should be -- cueing --.

JA0000492

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000115

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,815,551  
DATED : September 29, 1998  
INVENTOR(S) : Ronald A. Katz

Page 2 of 2

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 12.

Line 26, "P1 coupling" should be -- P1 and coupling --.

Column 16.

Line 29, "caller's" should be -- callers --.

Line 60, "nonreal-time" should be -- non real-time --.

Line 65, "however, is" should be -- however, it is --.

Column 17.

Line 37, "him-to" should be -- him to --.

Column 20.

Line 9, "20" should be -- 20) --.

Column 21.

Line 28, "down loaded" should be -- downloaded --.

Column 22.

Line 52, "receive, the" should be -- receive the --.

Column 23.

Line 39, "distributor" should be -- distributors --.

Line 48, "date" should be -- data --.



Attest:

*Brenda Moore*  
Attesting Officer

Signed and Sealed this

Twenty-ninth Day of October, 2002

JAMES E. ROGAN  
Director of the United States Patent and Trademark Office

JA0000493



US005815551A

**United States Patent**

[19]

[11] **Patent Number:** **5,815,551****Katz**[45] **Date of Patent:** **\*Sep. 29, 1998**[54] **TELEPHONIC-INTERFACE STATISTICAL ANALYSIS SYSTEM**[75] **Inventor:** **Ronald A. Katz**, Los Angeles, Calif.[73] **Assignee:** **Ronald A. Katz Technology Licensing, LP**, Los Angeles, Calif.[ \* ] **Notice:** The term of this patent shall not extend beyond the expiration date of Pat. No. 4,845,739.[21] **Appl. No.:** **473,320**[22] **Filed:** **Jun. 7, 1995****Related U.S. Application Data**

[63] Continuation of Ser. No. 335,923, Apr. 10, 1989, which is a continuation of Ser. No. 194,258, May 16, 1988, Pat. No. 4,845,739, which is a continuation-in-part of Ser. No. 18,244, Feb. 24, 1987, Pat. No. 4,792,968, which is a continuation-in-part of Ser. No. 753,299, Jul. 10, 1985, abandoned.

[51] **Int. Cl.<sup>6</sup>** ..... **H04M 1/66; H04M 3/50; H04M 11/08**[52] **U.S. Cl.** ..... **379/88; 379/91.02; 379/127; 379/189; 379/198; 379/265**[58] **Field of Search** ..... **379/67, 88, 89, 379/92, 97, 127, 142, 201, 207, 245, 246, 247, 265, 266, 189, 92.01, 92.03, 93.27, 93.25, 198, 196, 91.02, 91.01**[56] **References Cited****U.S. PATENT DOCUMENTS**

2,902,541 9/1959 Singleton .  
3,246,082 4/1966 Levy .  
3,393,272 7/1968 Hanson .  
3,394,246 7/1968 Goldman .  
3,544,769 12/1970 Hedin .  
3,556,530 1/1971 Barr .

(List continued on next page.)

**FOREIGN PATENT DOCUMENTS**

66113/81 7/1981 Australia .

1022674 12/1977 Canada .  
1025118 1/1978 Canada .  
1056500 6/1979 Canada .  
1059621 7/1979 Canada .  
1162336 2/1984 Canada .

(List continued on next page.)

**OTHER PUBLICATIONS**

Kroemer, F., "TELEBOX", Unterrichtsblätter, year 38/1985, No. 4, pp. 131-141 (Article)—no translation.

Kroemer, F., "TELEBOX", Unterrichtsblätter, year 41/1988, No. 2, pp. 67-83 (Article)—no translation.

C.R. Newson, "Merlin Voice Mail VM600," British Telecommunications Engineering, vol. 4, Apr. 1985, pp. 32-35.

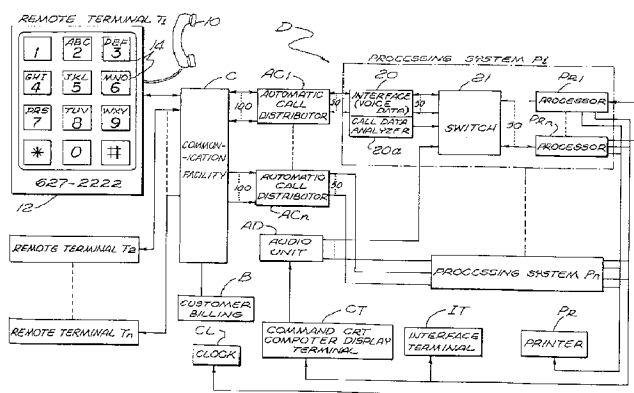
A.S. Yatagai, "Telephonic Voice Synthesis Systems," Telecommunications, Aug. 1985, pp. 56h-I, 68.

(List continued on next page.)

**Primary Examiner**—Thomas W. Brown  
**Attorney, Agent, or Firm**—Lyon & Lyon LLP

[57] **ABSTRACT**

A system D interfaces with a multiplicity of individual terminals T1-Tn of a telephone network facility C, at the terminals callers are prompted by voice-generated instructions to provide digital data that is identified for positive association with a caller and is stored for processing. The caller's identification data is confirmed using various techniques and callers may be ranked and accounted for on the basis of entitlement, sequence or demographics. Callers are assigned random designations that are stored along with statistical and identification data. A break-off control circuit may terminate the computer interface aborting to a terminal for direct communication with an operator. Real-time operation processing is an alternative to stored data. The accumulation of stored data (statistical, calling order sequence, etc.) is variously processed and correlated as with developed or established data to isolate a select group or subset of callers who can be readily identified and reliably confirmed. Different program formats variously control the processing of statistical data as for auction sales, contests, lotteries, polls, commercials and so on.

**35 Claims, 6 Drawing Sheets**

5,815,551

Page 2

## U.S. PATENT DOCUMENTS

3,594,004	7/1971	Barr	273/139	4,591,190	5/1986	Clark	
3,617,638	11/1971	Jochimsen et al.		4,598,367	7/1986	DeFrancesco et al.	364/408
3,644,675	2/1972	Waltington	379/92	4,611,094	9/1986	Asnuth et al.	379/201 X
3,688,126	8/1972	Klein		4,614,367	9/1986	Breen	
3,696,335	10/1972	Lemelson		4,625,276	11/1986	Brenton et al.	364/408
3,794,774	2/1974	Kemmerly et al.		4,630,200	12/1986	Ohmae et al.	364/405
3,800,283	3/1974	Gropper		4,630,201	12/1986	White	364/408
3,881,160	4/1975	Ross		4,634,809	1/1987	Paulsson et al.	379/91
3,889,050	6/1975	Thompson		4,649,563	3/1987	Riskin	379/97
3,909,553	9/1975	Marshall		4,652,998	3/1987	Koza et al.	364/412
3,912,874	10/1975	Botterell et al.		4,658,417	4/1987	Ihashimoto et al.	379/97
3,918,174	11/1975	Miller et al.		4,663,777	5/1987	Szeto	379/88
3,920,908	11/1975	Kraus	379/142 X	4,671,512	6/1987	Bachman et al.	273/139
3,934,095	1/1976	Matthews et al.	379/67	4,674,044	6/1987	Kalmus et al.	364/408
3,947,972	4/1976	Freeman		4,677,553	6/1987	Roberts et al.	364/412
3,950,618	4/1976	Bloisi	379/92	4,694,490	9/1987	Harvey et al.	380/20
3,998,465	12/1976	Mascola	273/139	4,697,282	9/1987	Winter et al.	379/67
4,017,835	4/1977	Randolph	379/91	4,699,563	10/1987	Riskin	39/97
4,054,756	10/1977	Comella et al.		4,704,725	11/1987	Harvey et al.	380/9
4,071,698	1/1978	Barger et al.	379/92	4,706,275	11/1987	Kamil	379/144
4,078,316	3/1978	Freeman		4,716,583	12/1987	Groner et al.	379/88
4,090,038	5/1978	Biggs	379/393	4,745,468	5/1988	Von Kohorn	348/13
4,117,278	9/1978	Ehrlich et al.		4,756,020	7/1988	Fodate	379/112
4,121,052	10/1978	Richard	379/96	4,757,267	7/1988	Riskin	379/113
4,145,578	3/1979	Orries	379/188	4,761,684	8/1988	Clark et al.	379/105 X
4,162,377	7/1979	Mearns		4,763,191	8/1988	Gordon et al.	378/201 X
4,191,376	3/1980	Goldman		4,764,666	8/1988	Bergeron	235/380
4,191,860	3/1980	Weber	379/115	4,766,604	8/1988	Axberg	379/67
4,194,089	3/1980	Hashimoto	379/76	4,774,655	9/1988	Kollin et al.	
4,241,942	12/1980	Bachman		4,781,377	11/1988	McVean et al.	273/86 R
4,242,539	12/1980	Hashimoto	379/142	4,785,408	11/1988	Britton et al.	395/2.79
4,243,844	1/1981	Weldman	379/442	4,788,682	11/1988	Vij et al.	370/259
4,255,618	3/1981	Danner et al.	379/88 X	4,788,715	11/1988	Lee	379/84
4,264,924	4/1981	Freeman		4,788,718	11/1988	McNabb et al.	379/113
4,264,925	4/1981	Freeman et al.		4,792,968	12/1988	Katz	379/92
4,277,649	7/1981	Sheinbein	379/201	4,796,293	1/1989	Blinken et al.	379/202
4,290,141	9/1981	Anderson et al.	455/2	4,797,910	1/1989	Daudelin	379/67
4,299,637	11/1981	Oberdeck et al.		4,797,913	1/1989	Kaplan et al.	379/91
4,302,810	11/1981	Bouricius et al.	380/24	4,805,209	2/1989	Baker, Jr. et al.	379/96
4,314,103	2/1982	Wilson	379/77	4,812,843	3/1989	Champion, III et al.	340/905
4,320,256	3/1982	Freemna	379/73	4,815,121	3/1989	Yoshida	379/67
4,345,315	8/1982	Cadotte et al.	379/92	4,827,500	5/1989	Binkard et al.	379/88
4,348,554	9/1982	Asmuth		4,842,278	6/1989	Markowicz	
4,355,207	10/1982	Curtin	379/67	4,845,739	7/1989	Katz	379/92
4,360,827	11/1982	Braun		4,847,890	7/1989	Solomon et al.	379/67
4,376,875	3/1983	Beirne	379/88	4,852,154	7/1989	Lewis et al.	379/105
4,398,708	8/1983	Goldman et al.		4,866,756	9/1989	Crane et al.	379/88
4,439,636	3/1984	Newkirk et al.	379/123	4,882,473	11/1989	Bergeron et al.	235/380
4,451,700	5/1984	Kempner et al.	379/88	4,893,328	1/1990	Peacock	379/67
4,468,528	8/1984	Reece et al.	379/84	4,894,857	1/1990	Szlam et al.	379/67
4,489,438	12/1984	Hughes	379/88 X	4,896,345	1/1990	Thorne	379/67
4,490,583	12/1984	Bednarz et al.		4,897,867	1/1990	Foster	379/94
4,517,410	5/1985	Williams et al.	379/73	4,899,375	2/1990	Bauer et al.	379/264
4,521,643	6/1985	Dupuis et al.	379/4.9	4,907,079	3/1990	Turner et al.	379/92 X
4,523,055	6/1985	Hohl et al.	379/8.9	4,922,522	5/1990	Scanlon	463/17
4,532,378	7/1985	Nakayama et al.	379/110	4,937,853	6/1990	Brule et al.	379/96
4,539,435	9/1985	Eckmann	379/77 X	4,942,598	7/1990	Davis	379/57
4,541,087	9/1985	Comstock		4,942,599	7/1990	Gordon et al.	379/93
4,549,047	10/1985	Brian et al.	379/88	4,942,616	7/1990	Linstroth et al.	379/9.85
4,555,594	11/1985	Friedes et al.		4,964,157	10/1990	Aoshima	379/204
4,559,415	12/1985	Bernard et al.	379/95	4,965,825	10/1990	Harvey et al.	380/9
4,562,342	12/1985	Solo		4,969,185	11/1990	Dorst et al.	379/209
4,566,030	1/1986	Nickerson et al.		4,972,461	11/1990	Brown et al.	379/67
4,567,359	1/1986	Lockwood	235/381	4,989,233	1/1991	Schakowsky et al.	379/92
4,570,930	2/1986	Matheson	273/434	4,996,705	2/1991	Entenmann et al.	379/91
4,577,062	3/1986	Hillary et al.	379/88	5,001,710	3/1991	Gawrys et al.	370/290
4,577,067	3/1986	Levy et al.	379/101	5,003,574	3/1991	Denq et al.	379/95
4,578,700	3/1986	Roberts et al.	379/92	5,014,298	5/1991	Katz	379/93
4,580,012	4/1986	Matthews et al.	379/89 X	5,017,917	5/1991	Fisher et al.	340/825.79
4,582,956	4/1986	Doughty		5,018,736	5/1991	Pearson et al.	273/439
4,584,602	4/1986	Nakagawa	379/9.2	5,023,904	6/1991	Kaplan et al.	379/91
4,585,906	4/1986	Matthews et al.	379/88	5,046,183	9/1991	Dorst et al.	
4,586,707	5/1986	McNeight et al.	273/430	5,083,272	1/1992	Walker et al.	364/412
4,587,379	5/1986	Masuda	379/91	5,097,528	3/1992	Gursahaney et al.	379/67
				5,109,414	4/1992	Harvey et al.	380/9
				5,127,003	6/1992	Doll, Jr. et al.	

5,815,551

Page 3

5,146,491	9/1992	Silver et al.	379/114
5,181,238	1/1993	Medamana et al.	379/95
5,233,654	8/1993	Harvey et al.	380/20
5,255,183	10/1993	Katz	364/406
5,263,723	11/1993	Pearson et al.	273/439
5,333,185	7/1994	Burke et al.	379/127
5,335,277	8/1994	Harvey et al.	380/20
5,351,276	9/1994	Doll, Jr. et al.	379/67
5,353,335	10/1994	D'Urso et al.	379/67

## FOREIGN PATENT DOCUMENTS

1225759	8/1987	Canada .
2009937.2	8/1990	Canada .
0 120 322	2/1984	European Pat. Off. .
0 229 170 A	7/1987	European Pat. Off. .
0249575	12/1987	European Pat. Off. .
0295837	12/1988	European Pat. Off. .
0342295	11/1989	European Pat. Off. .
0434181	6/1991	European Pat. Off. .
0 568 114 A	11/1993	European Pat. Off. .
0 620 669 A	10/1994	European Pat. Off. .
9002131	8/1990	France .
OS 2929416	2/1981	Germany .
OS 3726366	2/1988	Germany .
4005365 A1	8/1990	Germany .
52-17740	9/1977	Japan .
56-152365	11/1981	Japan .
62-239757	10/1987	Japan .
500138/88	1/1988	Japan .
298158/90	12/1990	Japan .
41855/91	2/1991	Japan .
2184327	6/1987	United Kingdom .
2 230 403	10/1990	United Kingdom .
WO 87/00375	1/1987	WIPO .
WO88/02966	4/1988	WIPO .
WO88/05985	8/1988	WIPO .
WO89/02139	3/1989	WIPO .
WO93/05483	3/1993	WIPO .

## OTHER PUBLICATIONS

A.J. Waite, "Getting Personal With New Technologies For Telemarketers," *DM News*, Feb. 15, 1987, at 50.

"Shopping via a network is no longer just talk," *Data Communications*, Aug. 1981 at 43.

"Growth-Oriented Systems," *Restaurant Technology*, Nation's Restaurant News Newspaper, Jul. 1, 1985, pp. 17, 20, 22 at 51.

"Let your fingers do the tapping . . . and the computer the talking," *Modern Office Tech.*, May 1984, at 80.

"American Software unveils systems for IBM mainframe," *Computerworld*, Mar. 26, 1984 at 59.

"Business Units Get Order Entry," *Computerworld*, Jul. 12, 1982 at 36.

Borison, V.S., "Transaction—telephone gets the fact at the point of sale," *Bell Laboratories Record*, Oct. 1975, pp. 377-383—(Article).

Demeautis, M., et al., "The TV 200 A Transactional Telephone," *Communication & Transmission N° 5*, 1985, pp. 71-82—(Article).

Eriksson, G., et al., "Voice and Data Workstations and Services in the ISDN," *Ericsson Review*, May 1984, pp. 14-19—(Article).

Schrage, Michael, "A Game Von Meister in Pursuit of Profits," *Washington Post*, Sep. 23, 1985—(Article).

Svigals, J., "Low Cost Point-Of-Scale Terminal," *IBM Technical Disclosure Bulletin*, Sep. 1982, vol. 25, No. 4, p. 1835.

Turbat, A., "Telepayment And Electronic Money The Smart Card", *Communication & Transmission n° 5*, 1982, pp. 11-20—(Article).

"Voice Mail", *Sound & Communications*, Apr. 1983, vol. 28, No. 12, pp. 84-85—(Article).

Aso, Satoshi, "Trends and Applications of Voice Output Devices", *2209 J.E.E. Journal of Electronic Engineering*, Feb. 1982, vol. 19, No. 182, pp. 102-107—(Article).

Lexis Search Results (Great American Potato—Chip giveaway/Raisin Bran Game/Giants Baseball Trivia—Dial Info): "In The Chips" *AdWeek*, Jul. 22, 1985.

"San-Fran-Police-League", *Business Wire*, Aug. 2, 1985.

"Similar Campaigns", *DM News*, Dec. 15, 1985.

"Phone Offers Action At Push Of Button", *Advertising Age*, Feb. 6, 1986.

Boies, Stephen J., "A Computer Based Audio Communication System", *Computer Sciences Department*, Thomas J. Watson Research Center, Yorktown Heights, New York, USA, pp. 701-704—(Article) (Undated).

Winckelmann, W.A., "Automatic Intercepts Service", *Bell Laboratories Record*, May 1968, vol. 46, No. 5, pp. 138-143—(Article).

"Proposed Agreement Between National Enterprises Board (N.E.B.) and Dalphi", Jan. 30, 1979.

Voysey, Hedley, "Nexos wins right to comms engine", *Computing*, Sep. 6, ??, vol. 7, No. 36—(Article).

"Appraisal Of The Fair Market Value Of Delphi Communications", Apr. 30, 1980—(Study) Delphi Communications—(Charts and Exhibits).

"Voice-Response System Improves Order Entry, Inventory Control", *Communications News*, Aug. 1976—(Article).

"Periphonics VoicePack"—(Brochure) (Undated).

"The Voice Response Peripheral that Turns Every Touch-Tone Telephone Into A Computer Terminal", Periphonics Corporation—(Brochure) (Undated).

Rabin, Jeff, "Minorities Seek 30% Share of All Lottery Operations", *Sacramento Bee*, Apr. 12, 1985—(Article).

Advertisements (Dial Giants Baseball Trivia Game): *San Francisco Chronicle*, Jul. 3, 1984.

Curtis, Cathy, "976 numbers let you dial-a-whatever", *San Francisco Business Journal*, Nov. 26, 1984—(Article).

Ferrell, Jane, "Three little numbers for instant information", *San Francisco Chronicle*, Aug. 15, 1984—(Article).

"Dallas Telephone Call-In Games Uses Computer Voice Interface", Sep. 24, 1984—(Press Release).

Rivest, R.L., et al., "A Method for Obtaining Digital Signatures and Public-Key Cryptosystems", *Communications of the ACM*, Feb. 1978, vol. 21, No. 2, pp. 120-126—(Article).

Finnigan, Paul F, "Audiotex: The telephone as data-access equipment", *Data Communications*, 1987, pp. 155-161 (Article).

Ozawa, Y., et al., "Voice Response System and Its Applications", *Hitachi Review*, Dec. 1979, vol. 28, No. 6, pp. 301-305—(Article).

"AT&T 2: Reaces agreement with Rockwell (ROK)", Aug. 26, 1986—(Press Release) AT&T: Expands Computer speech system product line, Apr. 14, 1986—(Press Release).

Adams, Cynthia, "Coversing With Computers", *Computerworld on Communications*, May 18, 1983, vol. 17, No. 20A, pp. 36-44—(Article).

Hester, S.D., et al., "The AT&T Multi-Mode Voice System—Full Spectrum Solutions For Speech Processing Applications", Sep. 1985, pp. 1-10—(Proceedings Of The 1985 AVIOS Conference).

5,815,551

Page 4

- Davidson, Leon, "A Pushbutton Telephone For Alphanumeric Input", *Datamation*, Apr. 1966, pp. 27-30—(Article).  
Advertisement: Cuervo Gold Beach Chair, VoiceMail Int'l, '83.  
"Digital's All-In-1 Voice Messaging", *Digital*—(Brochure) (Updated).  
"Access Voice and Mail Messages From One Familiar Source", *Insight*,—(Article) (Undated).  
"Get The Message . . . !" New VoiceMail Features, *Voice-mail International, Inc.*, Oct. 1984—(Article).  
Brochures (TWA Crew Scheduling/PSA's Reservation System/Universal Studios Program/Dow Phone): "AVIAR The communication system that keeps you flying", VoiceMail Int'l,—(Brochure) (Undated).  
"TWA Voicemail, Flight Attendants Users Guide" Aug. 1986,—(Brochure).  
Holtman, Henry, "Voice Mail Soars At TWA", *Modern Office Technology* (Reprint), Mar. 1986,—(Article).  
"Bid Results via Voicemail—Flight Deck Crew Members", May 1, 1985 (Script).  
Borden, W.S., "Flight Attendant Self Input Of Monthly Bids Via Touch Tone Telephone", *In-Flight Services Bulletin*, Sep. 15, 1985—(Memo).  
"Look Ma, no operators! Automatic voice system does many airline jobs", *Air Transport World*, Oct. 1986—(Article).  
"1,000,000 Shares Common Stock" *Voicemail International, Inc.*, Jan. 10, 1984—(Public Offering Summary).  
Levinson, S.E., et al., "A Conversational-Mode Airline Information and Reservation System Using Speech Input and Output", *The Bell System Technical Journal*, Jan. 1980, vol. 59, No. 1, pp. 119-137.  
Emerson, S.T., "Voice Response Systems—Technology to the Rescue for Business users", *Speech Technology*, Jan./Feb. '83, pp. 99-103—(Article).  
Moslow, Jim, "Emergency reporting system for small communities", *Telephony*, Feb. 11, 1985, pp. 30-32, 34—(Article).  
Rabiner, L.R., et al., "Digital Techniques for Computer Voice Response: Implementation and Applications", *Proceedings Of The IEEE*, Apr. 1976, vol. 64, No. 4, pp. 416-432—(Article).  
Moosemiller, J.P., "AT&T Conversant™ I Voice System" *Speech Technology*, Mar./Apr. 1986, pp. 88-93—(Article).  
Frank, R.J., et al., "No. 4 ESS: Mass Announcement Capability", *The Bell System Technical Journal*, Jul./Aug. 1981, vol. 60, No. 6, Part 2, pp. 1049-1081—(Chapter from a Book).  
"Chapter I General Description" *D.I.A.L. PRM/Release 3—Version 2* Mar. 1987 (Product Reference Manual).  
"Announcing Release 3.3" *D-A-S-H-D.I.A.L. Application and Support Hints*, Jan./Feb. Mar. 1987, vol. 3, No. 1—(Brochure).  
"D.I.A.L. Software Release 4", *OPCOM*, Jan. 1988, Version 1—(Product Reference Manual).  
Brady, R.L., et al., "Telephone Identifier Interface", *IBM Technical Disclosure Bulletin*, Oct. 1976, vol. 19, No. 5, pp. 1569-1571—(Article).  
Corbett, A.J., "Telephone Enquiry System Using Synthetic Speech", *University of Essex*, Dec. 1974, (Thesis).  
Yoshizawa, K., et al., "Voice Response System for Telephone Betting", *Hitachi Review*, Jun. 1977, vol. 26, No. 6—(Article).  
Sagawa, S., et al., "Automatic Seat Redervation By Touch-Tone Telephone", *Second USA Japan Computer Conference*, 1975, vol. 2, pp. 290-294—(Article).  
Smith, S.L., "Computer-Generated Speech and Man-Computer Interaction", *Human Factors*, 1970, 12(2), pp. 215-223—(Article).  
Newhouse, A., et al., "On The Use Of Very Low Cost Terminal", *University of Houston*, pp. 240-249—(Paper) (Undated).  
Mullen, R.W., "Telephone—home's 'friendliest' Computer", *Inside Telephone Engineer And Measurement*, May 15, 1985, vol. 89, No. 10,—(Article).  
"Telephone Computing Entering Service Bureau Business", *American Banker*, Jul. 5, 1979—(Article).  
Kutler, Jeffrey, "Technology, System Sharing Improve Phone Banking Outlook", *American Banker*, Dec. 7, 1979, vol. CXLIV, No. 237—(Article).  
Kutler, Jeffrey, "Phone Bill Paying Accessed by Pioneer", *American Banker*, Dec. 7, 1979, vol. CXLIV, No. 237—(Article).  
"User's Guide", *Dowphone* (Undated).  
"Audiotex Information From Dow Jones", *The Computer Review*, Nov. 1984, vol. 2, No. 1—(Article).  
"Dow Phone Adds Innovest Systems' Technical Analysis Reports" *IDP Report*, Jan. 3, 1986—(Report).  
Perdue, R.J., et al., "Conversant 1 Voice System: Architecture and Applications", *AT&T Technical Journal*, Sep./Oct. 1986—(Article).  
Martin, James, "Design of Man-Computer Dialogues", *IBM System Research Institute*, Chapter 16, pp. 283-306—(Chapter from a Book) (Undate).  
Kaiserman, D.B., "the Role Of Audio Response In Data Collection Systems", *Proceedings of the Technical Sessions*, Paleis des Expositions, Geneva, Switzerland, Jun. 17-19, 1980, pp. 247-251—(Article).  
Boies, S.J., et al., "User Interface for Audio Communications System", *IBM Technical Disclosure Bulletin*, Dec. 1982, vol. 25, No. 7A, pp. 3371-3377—(Article).  
Kramer, J.J., "Human Factors Problems in the Use of Pushbutton Telephones for Data Entry", *Bell Telephone Laboratories*, Holmdel, N.J., Apr. 74, pp. 241-258—(Paper).  
Cox, Jr., Floyd, "Flora Fax", Jan. 22, 1986—(Letter and Advertisements).  
Isayama, Tetsuya, "Automatic Responses Processing Equipment as a Multi-media Communications Node", *Japan Telecommunications Review*, 1987, vol. 29, No. 1, pp. 29-36—(Article).  
Imai, Y., et al., "Shared Audio Information System using New Audio Response3s Unit" *Japan Telecommunications Review*, Oct. 1981, vol. 23, No. 4, pp. 383-390—(Article).  
"Distrust of computer kills home service plan" (date and source missing).  
"Automatic Call Distributor/Management Information System: Interface between 1/LAESS™ Switch Central Office and Customer Premises Equipment", *Bell Communications Research*, Dec. 1986, Technical Reference TR-TSY-000306, Issue 1—(Article).  
"Comparison Of ACD Systems", *Connection*, Feb. 1990—(Chart).  
"ACD Comparison", *Aspect*, Feb. 2, 1990—(Final Report).

U.S. Patent

Sep. 29, 1998

Sheet 1 of 6

5,815,551

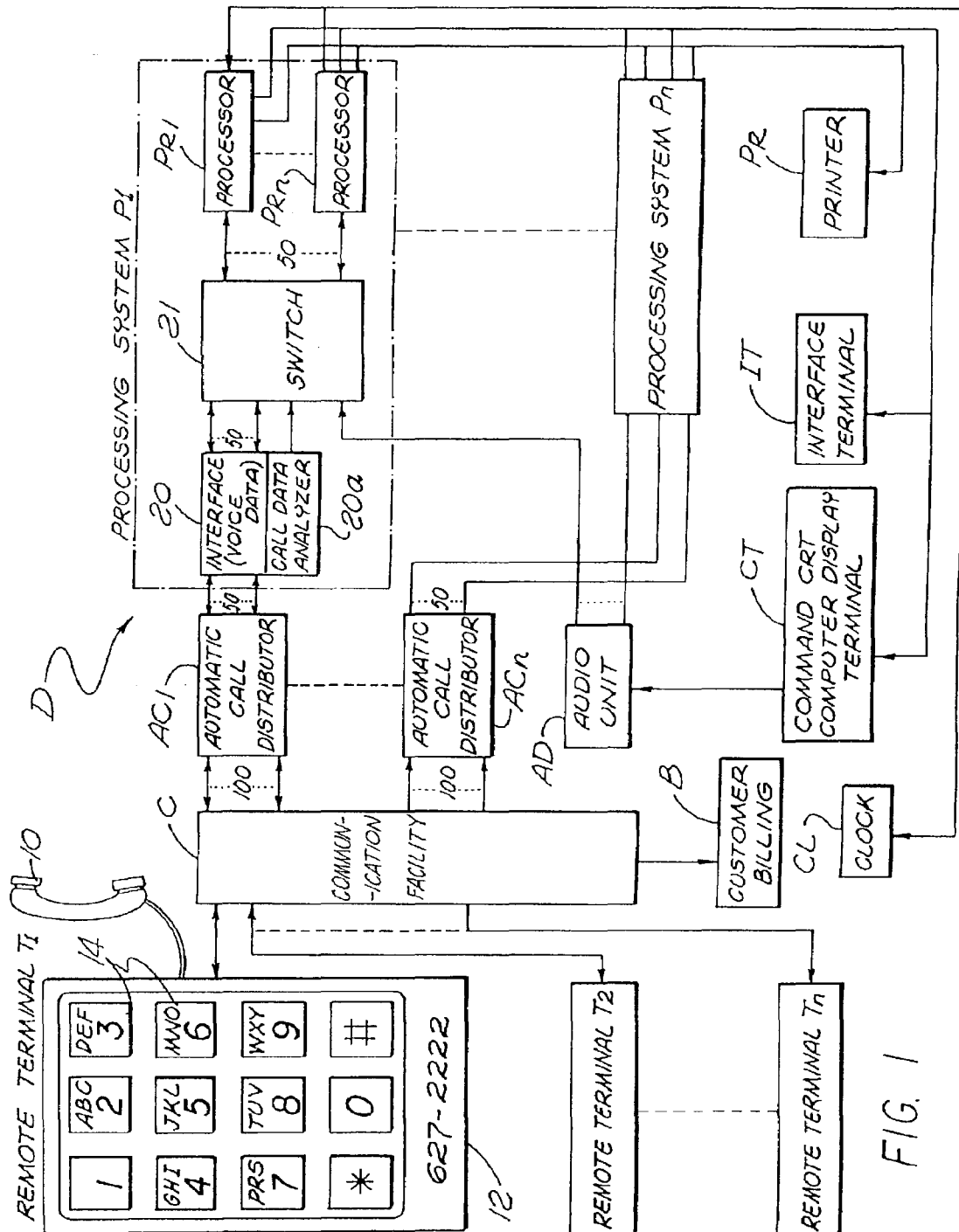


FIG. 1



U.S. Patent

Sep. 29, 1998

Sheet 2 of 6

5,815,551

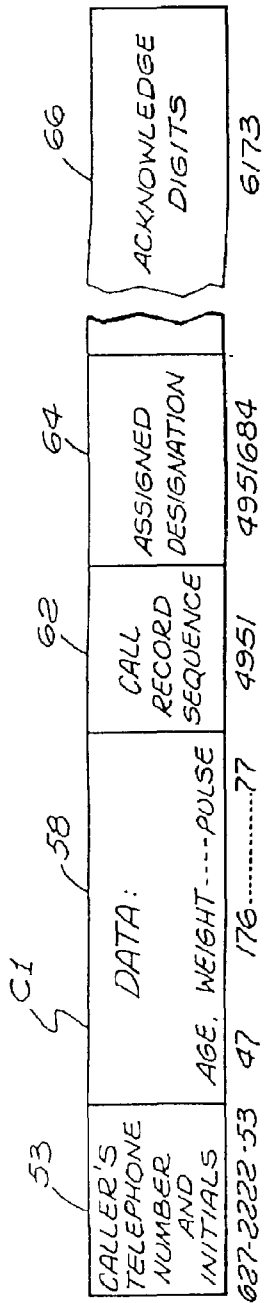


FIG. 2

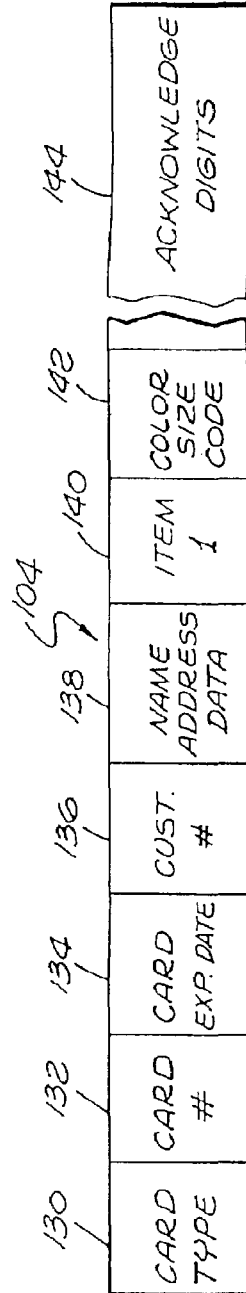


FIG. 5

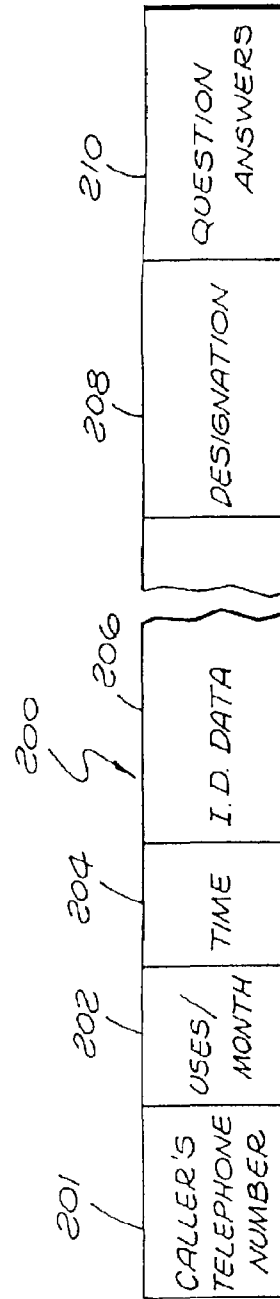


FIG. 7

U.S. Patent

Sep. 29, 1998

Sheet 3 of 6

5,815,551

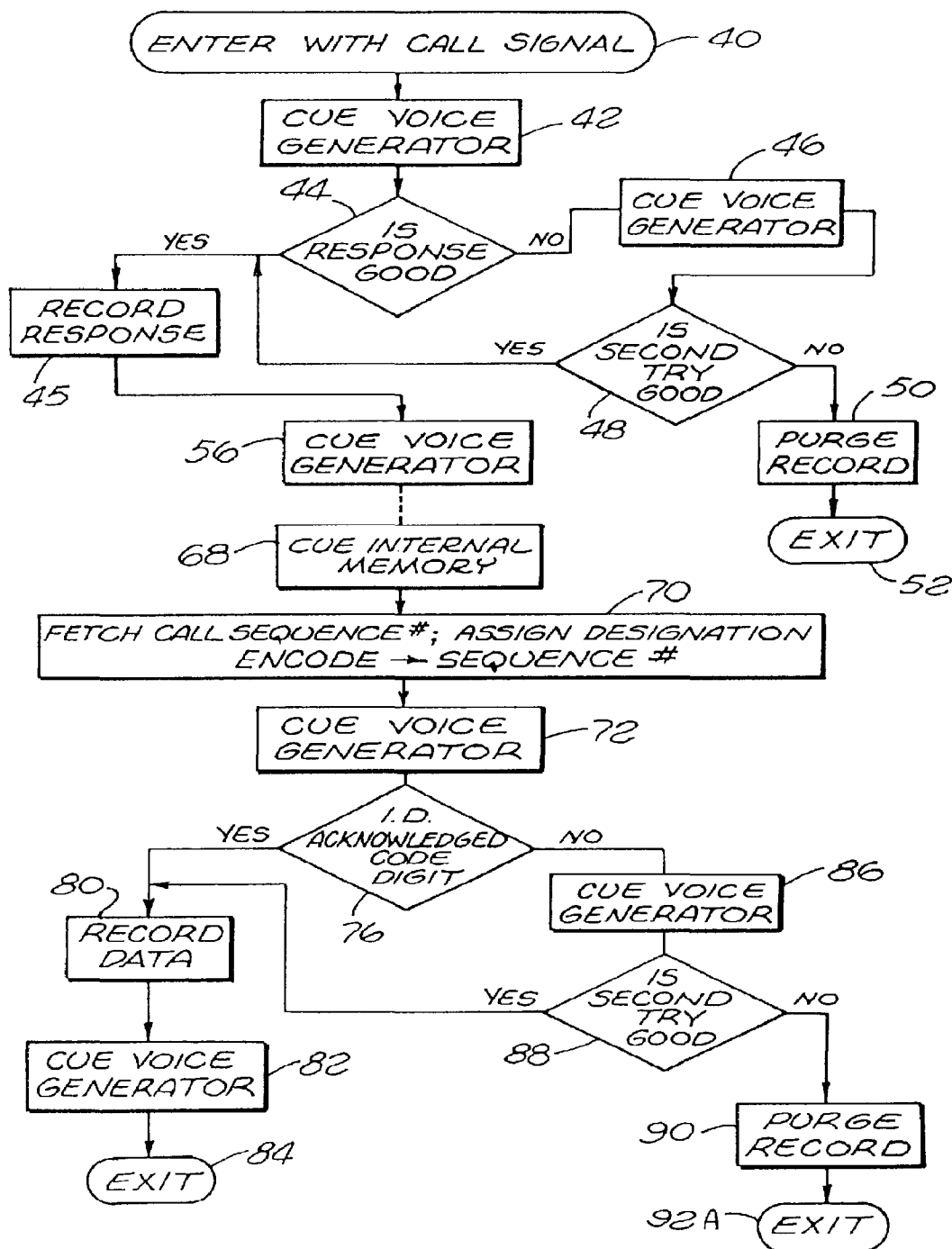


FIG. 3

U.S. Patent

Sep. 29, 1998

Sheet 4 of 6

5,815,551

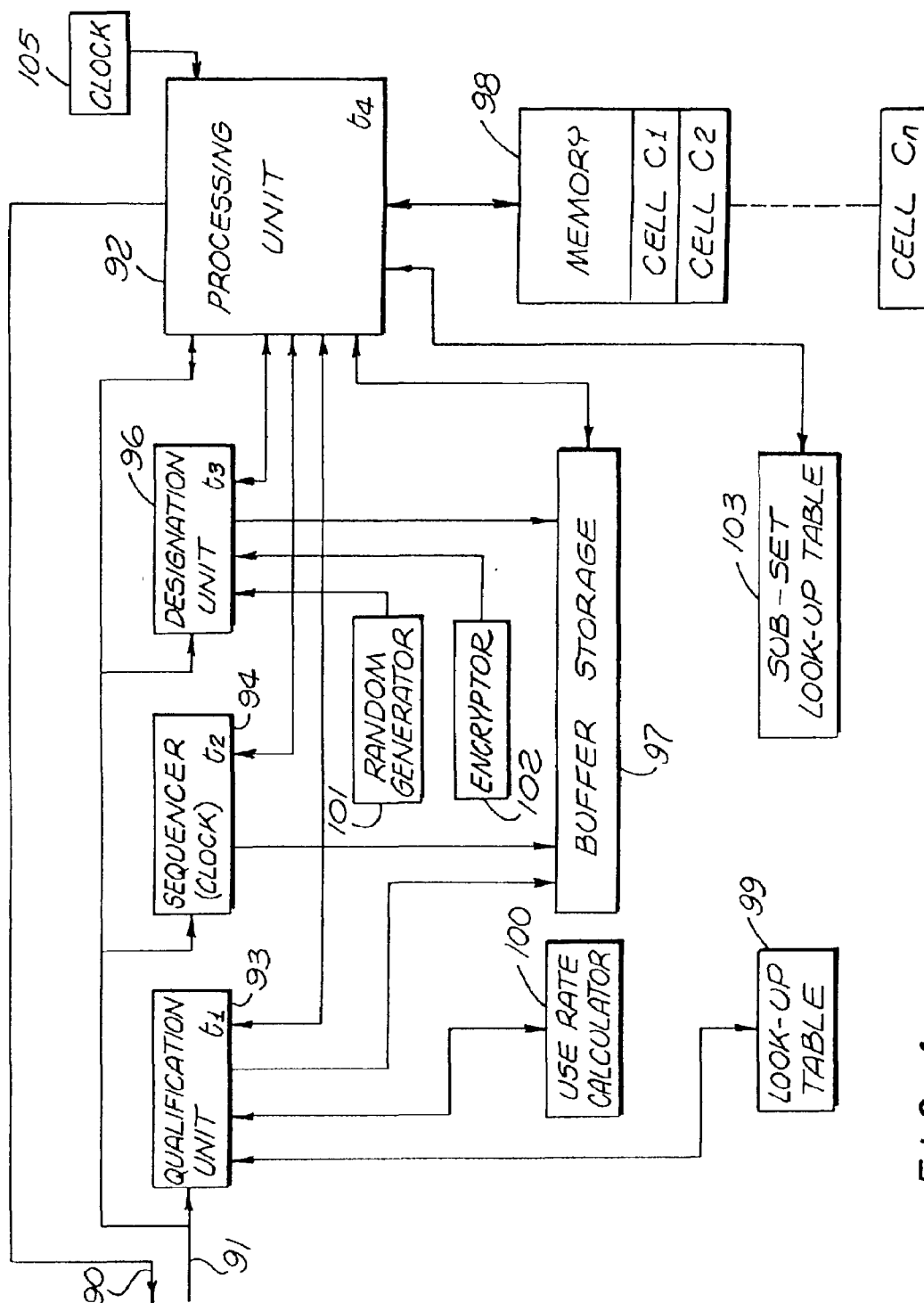


FIG. 4

U.S. Patent

Sep. 29, 1998

Sheet 5 of 6

5,815,551

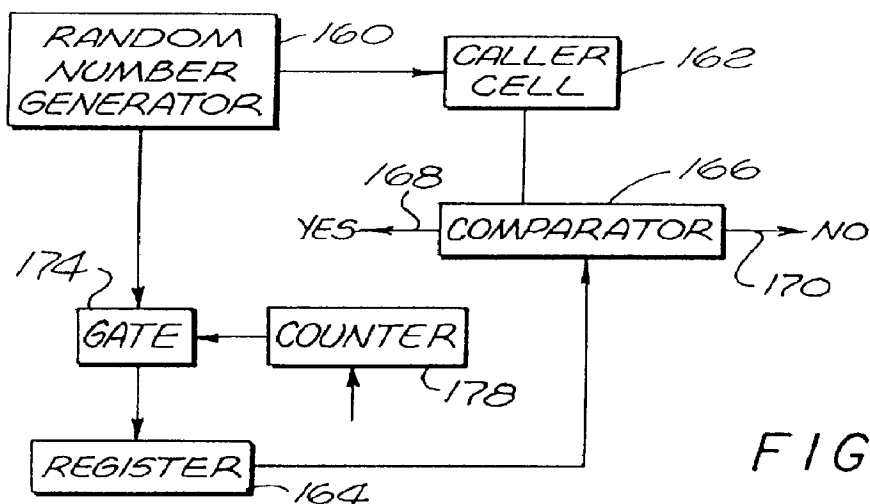


FIG. 6

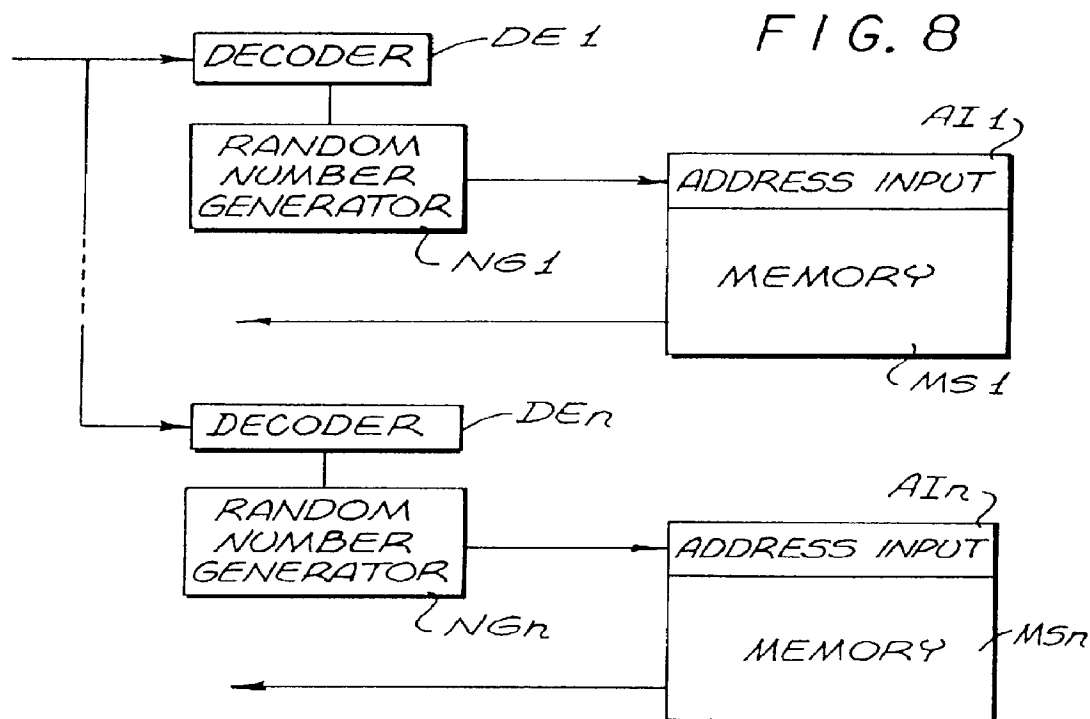


FIG. 8

**U.S. Patent**

Sep. 29, 1998

Sheet 6 of 6

**5,815,551**

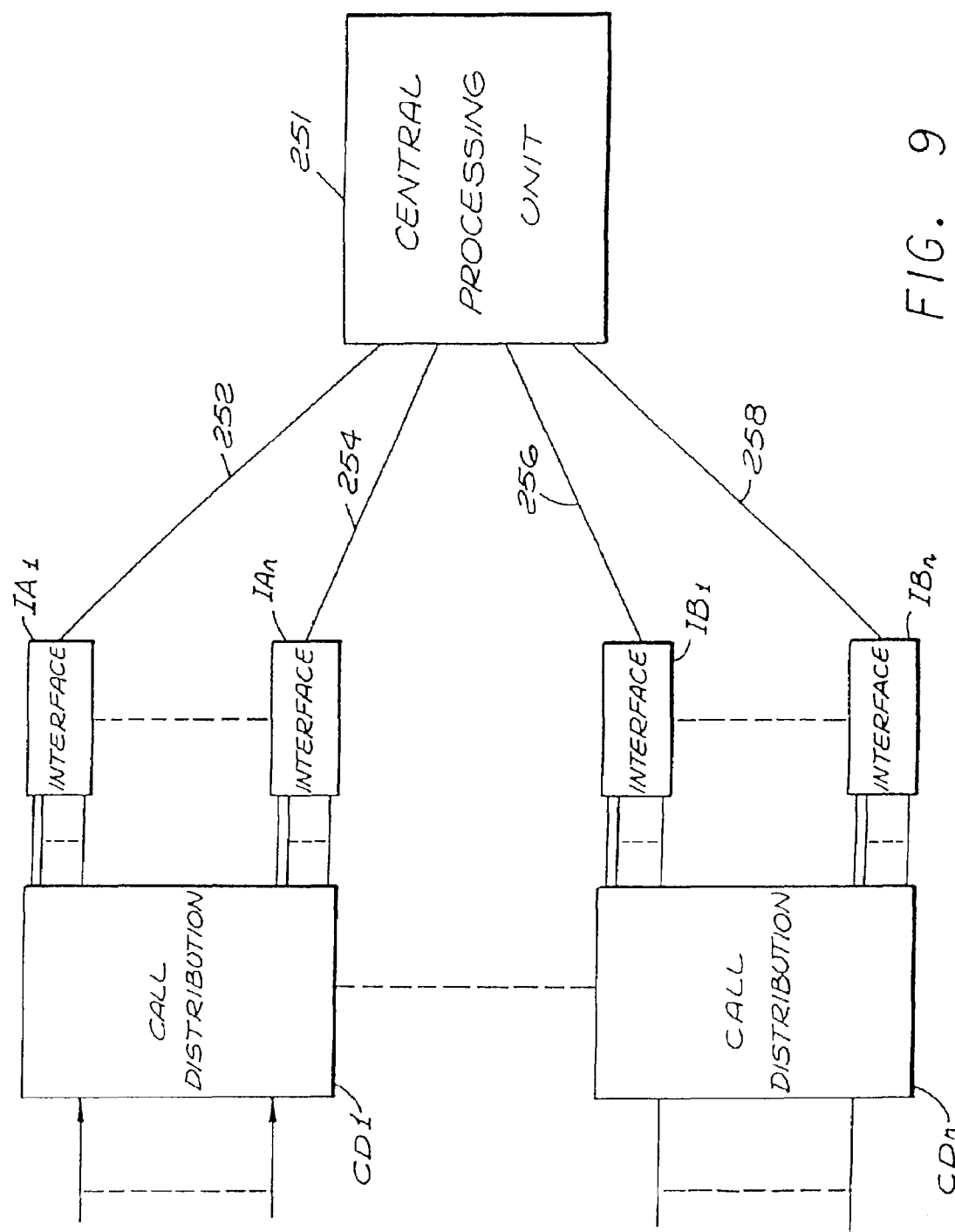


FIG. 9

5,815,551

1

**TELEPHONIC-INTERFACE STATISTICAL  
ANALYSIS SYSTEM****BACKGROUND AND SUMMARY OF THE  
INVENTION**

This is a continuation application of application Ser. No. 07/335,923 filed Apr. 10, 1989, and entitled "Telephonic-Interface Statistical Analysis System", which was a continuation of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility", now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility" (now abandoned).

Various forms of publicly accessible communication systems for providing access to a central station have been proposed, some involving telecommunications. However, sometimes a need for ancillary functions arise in that regard, e.g. it may be desirable to positively identify a large group of persons, as a demographically controlled group, or a specifically entitled group, then statistically analyze data from the group so as to accurately identify certain persons in the group and select a subset of at least one person. Specifically, it may be desirable to obtain medical data from an entitled group of people, to correlate such data, perhaps introduce external data, then identify a select subset of the group. In that regard, a need exists for an improved, effective, economical, and expedient system of telecommunication incorporating means for performing qualification, identification, analysis and selection of individual persons.

It has been proposed to interface persons at telephone calling stations directly with a computer facility. In accordance with such arrangements, recorded voice messages prompt callers to provide data by actuating the alphanumeric buttons that are conventionally employed for dialing from one telephone station to another. In one prior arrangement, a caller may actuate dialing buttons to selectively attain a communication channel or to address specific information in a computer. In another arrangement, dialing buttons may be actuated to specify a billing designation as for requested services. Generally, such systems are believed to have been somewhat limited in scope, often involving difficulties that are frustrating or confusing to a caller. Nevertheless, such techniques have been widely used to enhance and broaden communication.

In general, the present invention comprises a telephonic-interface system and related process for selectively utilizing both analog (voice) and digital telephonic communication in a variety of different interface formats or programs, as to select or qualify a set of callers, enable positive identification of at least certain of the callers in the set, acquire data from callers in the set, statistically analyze acquired data, as in combination and in association with external data (time independent), and accordingly to isolate a subset of the callers with verifiable identification. That is, the external data (separate from caller-provided data) may be introduced at any of a variety of different times in relation to the caller data.

For example, a voice origination apparatus may prompt individual callers who (after qualification) provide select digital data to develop a record for further processing either immediately, upon the evolution of a defined set of callers or

2

upon the establishment of select external data. Thus, following a qualification phase, the information acquisition phase may be concurrent or consecutive with respect to the processing phase. When appropriate, abort capability allows a caller to remain "off hook" and go to analog (vocal) communication. The caller then interfaces directly with an operator. For example, as disclosed in detail below, the calling number (ANI) is provided by the communication facility, and may be registered to correlate data in relation to the callers.

The system of the present invention may qualify an entitled set of callers, then receive answer data in the course of the call and develop identification or designation data, sequence data and statistical data. The system may then provide data cells for storing individual data while assigning confirmable identifications to the entitled set. From the set, a subset is defined. That is, in accordance with various formats, acquired data is processed in statistical relationship, or in relation to applied external data to accomplish such functional operating formats as an auction sale, a contest, a lottery, a poll, a merchandising operation, a game, and so on.

A variety of memory techniques are used to selectively activate the voice origination apparatus. Accordingly, statistical analysis and selection can be effectively and economically accomplished with respect to a substantial set of callers who are accommodated individual communication through a telephone system.

**BRIEF DESCRIPTION OF THE DRAWINGS**

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a system constructed in accordance with the present invention;

FIG. 2 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1;

FIG. 3 is a flow diagram of one operating format of the system of FIG. 1;

FIG. 4 is a block diagram of a form of processor or function unit as may be employed in the system of FIG. 1;

FIG. 5 is a fragmentary diagrammatic representation of a storage cell format as may be developed in the system of FIG. 1 with the processor of FIG. 4;

FIG. 6 is a block diagram of elements in an operating function unit of FIG. 4;

FIG. 7 is a diagrammatic representation of a storage cell format as may be developed in the system of FIG. 4; and

FIG. 8 is a block diagram of elements in an operating function unit of FIG. 4.

FIG. 9 is a block diagram of an alternate embodiment, showing a distributed-component arrangement of geographically spaced call distributors.

**DESCRIPTION OF THE ILLUSTRATIVE  
EMBODIMENTS**

As required, detailed illustrative embodiments of the present invention are disclosed herein. However, physical communication systems, data formats, and operating structures in accordance with the present invention may be embodied in a wide variety of forms, some of which may be quite different from those of the disclosed embodiments. Consequently, the specific structural and functional details disclosed herein are merely representative; yet in that regard,

5,815,551

3

they are deemed to afford the best embodiments for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote telephone-instrument terminals T1 through Tn are represented (left). The terminals are generally similar, and accordingly, only the terminal T1 is illustrated in detail.

In the disclosed embodiment, the remote terminals T1 through Tn represent the multitude of conventional telephone terminals that are coupled to a communication facility C which may take the form of a comprehensive public telephone system for interconnecting any associated terminals T1-Tn. In accordance with the present system, the terminals T1-Tn operate through the communication facility C to be coupled with a central station D, an embodiment of which is illustrated in some detail.

Generally in accordance with the present development, individual callers use the individual telephone stations T1 through Tn to interface the station D through the communication facility C. Callers may be screened or qualified. Also in accordance herewith, the data of individual callers may be collected, correlated and tested in the station D for processing in accordance with various programs and external data. As a consequence, various objectives are accomplished. For example, a select subset of the callers may be isolated and specifically identified, or related data may be processed, or transactions may be actuated. The possibilities for application of the system are substantial and varied as will be apparent from the exemplary structure and functions as described in detail below.

In one operating process format, the public might be polled with regard to locating the specific purchasers of a defective or dangerous product. Alternatively, the public might be polled with the objective of locating persons susceptible to a specific ailment or disease. Public auctions of unprecedented participation are possible. Legal lotteries are enabled that are interesting, effective and very economical on an individual participant basis. The system also might be employed in various game formats or to automate a promotion or mail-order operation, even to the extent of including inventory control as detailed below.

In each functional operating format, the callers may be variously qualified on the basis of entitlement and may be identified for subsequent verification. The callers then may be prompted, either through the interface or externally, to provide appropriate data.

Considering the system of FIG. 1 in somewhat greater detail, it is to be understood that the communication facility C has multiplexing capability for individually coupling the terminals T1-Tn to the central station D on request. In the illustrative embodiment of the system, the communication facility C comprises a public telephone network and the individual terminals T1-Tn take the various forms of existing traditional or conventional telephone instruments.

The exemplary telephone terminal T1 is represented in some detail to include a hand piece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of push buttons 14 in the conventional configuration. Of course, the hand piece 10 accommodates analog signals while the panel 12 is a digital apparatus. Generally in accordance herewith, the hand piece 10 serves to manifest analog signals vocally to the caller.

In accordance with conventional telephone practice, alphabetic and numeric designations are provided on the buttons 14. For example, several of the buttons 14 carry three letters along with a decimal digit. Specifically, the

4

button designated with the numeral "2" also carries the letters "A", "B" and "C". In that manner, the buttons 14 encompass the numerals "0-9", two symbols, and the alphabet except for the letters "Q" and "Z". Consequently, the buttons 14 accommodate the entry of decimal data, and to some extent alphabetic data.

The buttons 14 designated with symbols "\*" and "#", along with the numeral "0", can be used by predetermined assignment to represent the letters "Q" and "Z" or any of a variety of other data or command components. Generally, in accordance herewith, the buttons 14 are employed to formulate digital data at the central station D in various formats determined by the instant specific use and operating format of the system.

Considering the central station D in somewhat greater detail, the communication facility C is coupled to interface a series of processing systems P1 through Pn (FIG. 1, left). Specifically, the communication facility C is connected to the processing systems P1-Pn through an associated series of automatic call distributors AC1 through ACn. Each of the automatic call distributors AC1-ACn accommodates one hundred lines from the communication facility C and accordingly, may accommodate and queue up to 100 calls.

Each of the automatic call distributors AC1-ACn may take various forms as well known in the prior art, functioning to queue incoming calls for connection to a lesser number of lines. In the disclosed embodiment, from each of the call distributors AC1-ACn, fifty lines are connected respectively to the individual data processing systems P1-Pn through an interface 20 and a switch 21. Thus, in the disclosed embodiment, each of the automatic call distributors AC1-ACn can accommodate one hundred lines, fifty of which may be active in association with one of the processing systems P.

The processing systems P1-Pn are similar, therefore, only the processing system P1 is shown in any detail. Collectively, the processing systems P1-Pn are interconnected with a command computer terminal CT, at least one interface terminal IT, at least one printer PR and an audio unit AD. The command terminal CT is separately coupled to the audio unit AD.

As represented; the processing systems P1 through Pn each contain a number of individual function units or processors PR1 through PRn. Although various other configurations and arrangements may be employed, the explanation is facilitated by including a plurality of individual function units as treated in detail below.

Considering the processing system P1, fifty lines from the automatic call distributor AC1 are connected to the interface 20, an exemplary form of which may be a commercially available Centrum 9000 unit. The interface 20 incorporates modems, tone decoders, switching mechanisms, DNIS and ANI capability (call data analyzer 20a) along with voice interface capability. Note that the interface may actually perform analysis on data. However, to preserve the disclosed embodiment manageable, major analysis is explained with reference to processors.

Generally, DNIS capability is a function of the communication facility C (composite telephone system) to provide called terminal digital data indicating the called number. ANI capability is a similar function whereby the digital data indicates the calling number with calling terminal digital signals. Both capabilities are available for use with equipment as the interface 20 and to provide control through the call data analyzer 20a.

Accommodating up to fifty independent calls on separate communication paths to the central station D, the interface

5,815,551

5

20 is capable of providing analog (voice) signals to prompt each caller. Also accommodated are digital signals including the DNIS and ANI signals. The system contemplates the possibility of utilizing sequences of lines in rotary as well as blocking sequences of lines, the numbers for which command a particular program or operation format of a function unit as disclosed in detail below.

The interface 20 provides the connection of the fifty lines to a switch 21 which is in turn coupled to fifty function units, or processors PR1-PRn. As indicated above, multiple function units, or processors, are described in the disclosed embodiment to facilitate the explanation. Of course, non-parallel techniques and multiplexed operations might well be employed as alternatives. For a similar reason, as disclosed herein, each of the processors PR1-PRn includes memory cells for each of the callers' individual data. Development and compilation of data in such cells according to various operating formats is described below. In the disclosed embodiment, the processors PR1-PRn are connected collectively to the command computer terminal CT (incorporating a CRT display), the interface terminal IT, and the printer PR. Note that the CRT display serves to visually display data regarding select subsets as explained in detail below.

Exemplary detailed structures for the processors PR1-PRn are described below; however, in general, the units may comprise a microcomputer, for example, programmed as suggested above and as disclosed in detail below to accomplish specific operating formats. As an integral part of such formats, a caller may be qualified as belonging to an entitled set of persons or to accommodate specific demographic objectives. Also, callers may be designated both with respect to their significance and their identification. For example, callers may have different significance in a format, depending on the time or sequence of their call. Also, the designation of a caller may be exceedingly important in relation to the caller eventually being isolated as part of a subset, the members of whom must be accurately verified. As described below, the designations may involve multiple elements which may include: random number assignments, encryption techniques, utilization of calling numbers, identification data, sequence of call and so on to facilitate reliable verification. Note that the communication facility C has a customer billing structure B that is interfaced by the system.

On the qualification and designation of callers, the system enters a data accumulation phase during which digital data (formatted at one of the telephone terminals T1-Tn) is processed by one of the processors PR1-PRn. In general, the processing evolves a subset (at least one caller) the members of which may be verified and confirmed.

Either during the data accumulation phase, or after the processing phase to isolate a subset, a distinct operation may involve actuating the interface terminal T1 for direct local communication between the caller and an operator at the terminal T1. Another distinct operation may involve actuation of the printer PR to provide documents in relation to the operating format, as for providing award certificates as for verifying members of an isolated subset. Also, charge slips may be generated containing at least part of the data of a particular transaction.

An appreciation of the philosophical operation of a system in accordance with the present invention may now be enhanced by considering an exemplary operation of the illustrative embodiment of FIG. 1 to isolate a subset of people who are susceptible to a particular disease or infir-

6

mity. The exemplary operation might involve a geographical-area, as a large city or population center, in which a particular health problem is somewhat acute. For example, a major population center might be polled where coronary artery disease is a significant problem. Accordingly, persons most susceptible to such disease could be identified for corrective recommendations.

People of the population center could be informed of the availability of a service for statistical health analysis. Accordingly, persons interested in their individual statistical situation would be motivated to utilize the service. Specifically, individual callers would use the remote terminals T1-Tn to contact the central station D through the communication facility C and thereby provide personal information that would enable a statistical analysis in relation to existing data so as to isolate and inform (either real time or batch basis) those persons statistically most likely to be in need of corrective measures. In such applications, it may be important that the caller's identity be subject to reliable verification. Other applications or programs also may present a critical need for positively verifiable identification to the extent that credit card numbers and/or personal identification numbers may be employed.

An exemplary operation of the system, with regard to a specific caller, will now be treated referring somewhat concurrently to FIGS. 1, 2 and 3. As indicated above, FIG. 2 indicates a data storage format for a memory cell in an exemplary processor PR and now will be considered with regard to an operating format in which data is composed for a caller. Pursuing the above example, assume the existence of a caller at the remote terminal T1 (telephone number (213) 627-2222) who wishes to pursue health-related information on the basis of statistical analysis. The caller lifts the hand piece 10 and in accordance with conventional techniques actuates the push buttons 14 to call for a select operating format, e.g. telephone number (213) 627-3333 and thereby establish communication through the facility C with a designated function unit in the central station D. Receiving the call signal, the automatic call distributor AC1 associates the called number ((213) 627-3333, rendered available using standard telephone DNIS techniques) through the interface 20 and the switch 21 to attain connection with the specific processor, e.g. the processor PR1 formatting the health-related program. Accordingly, the processor PR1 cooperates with the interface 20 to cue the interface 20 to operate as a voice generator.

The sequence of operations is represented to be initiated in FIG. 3 by the "enter" block 40 which is accordingly followed by a "cue voice generator" command block 42. If the ANI equipment is not employed, the voice generator in the interface 20 formulates speech, a representative form of which might be: "Thank you for participating in the coronary artery disease statistical analysis. Please give us your telephone number by actuating the call buttons on your telephone instrument." Acting on the instructions, the caller would push the buttons 14 in sequence to indicate his telephone number, e.g. "(213) 627-2222". Alternatively, the interface 20 can accept the calling number ((213) 627-2222) according to its provision by standard ANI equipment of the communication facility C.

The resulting data signals are communicated from the interface unit 20 (FIG. 1) to the processor PR1 for testing the telephone number as valid or entitled. Essentially, the format of a proper number prompts production of a valid or "good" signal. The test is indicated by the block 44 (FIG. 3). If the response is not valid or entitled, for example contains an inappropriate number of digits or has been used to a point of



5,815,551

7

excess, the operation of block 46 is initiated again cuing the voice generator 30 (FIG. 1). The voice generator accordingly instructs the caller, e.g.: "You have not entered a proper telephone number. Please reenter your telephone number by pressing the appropriate call buttons." The caller is then allotted a predetermined period of time to make a proper entry with the consequence that the system moves to a test operation as indicated by the block 48 (FIG. 3). Specifically, block 48 poses the query: "Is the second try good?"

If the caller is again unsuccessful, the system purges the record as indicated by the block 50 and the call is terminated as indicated by the block 52. In an alternative mode, the processor PR1 may abort the interface and couple the interface terminal IT for direct personal communication with the caller. The interchange would then proceed, person-to-person.

If the caller responds with a proper telephone number, the operation proceeds. Specifically, the system sequences to record the response of the proper telephone number as indicated by the block 45. That is, the caller's telephone number is recorded in an assigned specific memory cell identified with the caller. The format of the cell C1 is indicated in FIG. 2. The first portion, section 53, contains a form of identification data, i.e., the caller's telephone number, i.e. "(213) 627-2222".

Note that as explained above, if the second attempt to formulate a proper number is successful, as manifest by the block 40 (FIG. 3), the response is recorded at that stage. In either case, exiting from the block 54 (FIG. 3) invokes the next operation of again queuing the voice generator as indicated by the block 56.

As an alternative format, if a selective-group polling operation is performed, or callers are otherwise to be cleared for entitlement as mentioned above, a caller may be qualified by providing a "one-time" key number. The processor PR1 may incorporate a look-up table for proper key numbers which numbers may be coded using any of a wide variety of techniques. As a simple illustrative example, the key may comprise a precise number of digits that always total a particular numerical value.

The system proceeds after the caller is qualified. Specifically, the cue to the voice generator of the interface 20 (FIG. 1) as represented by the block 56 produces a request for further information from the caller with further identification data and answer data. For example, the voice generator might request information by stating: "Please use the telephone buttons to indicate initials of your name." The detailed operation is not represented in FIG. 3 as it is similar to the operation illustrated by the blocks 42 through 54. However, again, a proper response is registered in the storage cell C1 as illustrated in FIG. 2 by the number "53" also registered in the first section 53 of the cell.

The cycle of obtaining digital information from the caller next is repeated with respect to answer data, i.e. specific health data. For example, as illustrated in FIG. 2, the next section 58 in the cell C1 receives an accumulation of health data, including the caller's age, weight, . . . , pulse rate, and so on. Representative digital numbers are illustrated in FIG. 2.

During the course of the telephonic communication, the processor PR1 formulates identification data for the caller specifically including: the chronological sequence of the call, the assigned designation of the call, and a set of acknowledgment digits for the call. Such data identification is registered in the caller's assigned cell C1 in accordance

8

with the format of FIG. 2 being stored in sections 62, 64 and 66. Note that the data may be stored in a coded interrelationship. For example, the acknowledgment digits may be related to the call record sequence. In the illustrative example, the chronological order number of the caller is 4951. The acknowledge digits may be derived from the sequence number. For example, as illustrated, a coded relationship may be established by adding "two" to each of the individual record sequence digits. Considering the example numerically:

Adding without propagated carries:

```

4951
2222
6173

```

Note that the confirmation data as acknowledgement digits can be extremely important, as to communicate with an isolated member of a subset. For example, identification could be published or circulated, as by a television broadcast, then respondents checked by use of confirmation data that may be confidential.

Continuing with the above example, the call chronological sequence registered for the caller is 4951 as represented in the section 62 while the acknowledge digits are 6173 as registered in the section 66. Additionally, the processor PR1 develops an assigned designation number, e.g. designation "4951684", which is registered in the section 64, the acknowledge code or digits, e.g. 6173, being registered in the section 66. These values are formulated in accordance with conventional number techniques during the data acquisition phase. With the exemplary numerals formulated, the operation proceeds.

The processor PR1 (FIG. 1) cues the internal memory. That operation is indicated by the block 68 (FIG. 3). Thus, the processor PR1 fetches the call record sequence number, assigns a designation (if not previously assigned), and encodes the sequence number as the acknowledgment digits (if not previously accomplished). These operations are indicated by the block 70 (FIG. 3).

Next, the processor PR1 (FIG. 1) cues the voice generator in the interface 20, as indicated by the block 72 (FIG. 3) to provide information to the caller. Specifically, for example, the voice generator in the interface 20 (FIG. 1) might signal: "This transaction has been designated by the number 4951684, and is further identified by the acknowledgment digits 6173. Please make a record of these numbers as they will be repeated. Specifically, the designation number is 4951684. The acknowledgment digits are 6173. Please acknowledge this transaction by pressing your telephone buttons to indicate the acknowledge digits 6173." In various applications as those involving security, the order and acknowledgment of callers may be very important. Therefore, data for confirmation associated with the order is important.

The system next proceeds to the test mode as indicated by the block 76 (FIG. 3). If the caller provides the correct acknowledgment digits, the data is confirmed in the record as indicated by the block 80 and is registered in the cell C1 (FIG. 2). Additionally, the voice generator is sequenced as indicated by the block 82 (FIG. 3) to indicate the close of the communication and that the transaction is terminated as represented by the exit block 84.

In the event that a caller cannot confirm his acknowledgment digits, as indicated by the block 76, a repeat operation is performed as indicated respectively by the blocks 86 and 88. Specifically, the voice generator is queued for a second instructional message. In the event that the second attempt

5,815,551

9

also fails, the data is purged and the call discounted as indicated by block 90 and an exit block 92. If the second try is successful (test block 88), as indicated by the block 80, the record is perfected as indicated above.

As a result of the likelihood of a large number of calls, as described above, data cells in the processors PR1-PRn (FIG. 1) are developed with specific information indicative of a statistical sampling of the populace of concern. The data of that statistical sampling may be self-generating of specific conclusions with respect to a subset of individuals, and/or supplemental data to clearly manifest a significant subset. For example, the data may indicate a significant departure from an assumed normal characteristic. Such data, accumulated from the polling may be considered by logic comparisons in the computer 22 to select the subset of persons who should be isolated.

In addition to the self-generating conclusions available from the received data, the system may involve the introduction of external data. In the physical fitness example, such external data might take the form of national statistical data. In any event, the processing operation usually involves comparison testing which compares caller data from individual memory cells of the processors P1-Pn (FIG. 1) with test data that is supplied through the command terminal CT.

In the above example, members of the public in general were invited to use the service. A number of alternatives exist which might well impact on the statistical analysis. For example, a list may be preserved by a use-rate calculator to implement a consumable key operation. That is, a user is qualified to a specific limited number of uses during a defined interval.

As another example, callers might be restricted to the purchasers of a specific product as a medical apparatus for measuring blood pressures, heart rates, or so on. In such situations, it will be apparent that the statistical data will be somewhat distorted from an average or normal sampling. Clearly, the processors P1-Pn can be programmed to take into account such considerations. In that regard, the processors might also verify identification data proffered by a caller. Such data might take the form of a credit card number or a personal identification number. Methods for verification of such numbers using computer techniques are discussed below.

As indicated above and detailed below, the system can be programmed or formatted for use in a variety of applications. Preliminary to considering exemplary forms of such applications, reference will now be made to FIG. 4 showing an exemplary structural form for the processors PR1-PRn. From the switch 21 (FIG. 1) a pair of communication lines 90 and 91 are indicated in FIG. 4 (top left). The line 90 provides signals from a processing unit 92 while the line 91 provides signals to the processing unit 92 along with other components as represented in FIG. 4. The separate lines 90 and 92 facilitate explanation.

The processing unit 92 may take the form of a mini-computer programmed to accommodate the functions of various applications, as disclosed in detail below. As indicated above, the system may utilize a plurality of independent function units or processing units, e.g., processing unit 92, operating in a somewhat parallel configuration, or alternatively, a limited number of processors may be driven sequentially to accommodate the functional operations as described.

The input line 91 (upper left) is connected specifically to a qualification unit 93, a sequencer 94 and a designation unit 96, as well as the processing unit 92 as indicated above. The qualification unit qualifies access from a remote terminal

10

T1-Tn to the processing unit 92 as described in detail below. In accordance with various applications or operating formats, the qualification unit 93, the sequencer 94 and the designation unit 96 operate preliminarily with respect to individual callers. Generally, these units qualify or test callers for entitlement, develop a sequence-of-calls record and provide forms of designations for callers that may be authenticated. As described in detail below, the units function in sequence to accomplish such operations and accordingly are each individually connected to the processing unit 92 and a buffer storage 97. Essentially, the buffer storage 97 is illustrated separately from the processing unit 92 along with the unit 93, sequencer 94, unit 96, and so on, again in order to facilitate the explanation. Similarly illustrated are a memory 98 (with cells C1-Cn), a look-up table 103 and a clock 105.

Considering the processor of FIG. 4 in further detail, the qualification unit 93 (upper left) is connected to a look-up table 99 and a use-rate calculator 100. The designation unit 96 (top center) is connected to a random number generator 101 and an encryptor 102.

In view of the above structural description of the system, consideration will now be given to certain specific applications in relation to the operation of the system. In that regard, the operation of the system will next be considered to automate a mail-order facility.

Assume that a caller at a terminal T1 (FIG. 1) dials a specific number to identify a mail order interface with the system of FIG. 1. For example, assume the telephone number "(213) 627-4444" for such an interface. Accordingly the caller dials the number at the remote terminal T1. As a result, the communication facility C couples the terminal T1 through the automatic call distributor AC1, the interface 20 and the switch 21 to a select processor PR1 identified and programmed for a mail-order operating format. Note that the communication facility C provides the dialed number ("(213) 627-4444") to the processing system P1 through well known telephonic equipment DNIS. Accordingly, a program is selected to execute the mail order interface.

As a preliminary action, a voice responder in the interface 20 might be cued by the processing unit to identify the mail-order house and indicate that the order will be taken by computer. Either before or after qualification, the caller might be advised that if he prefers to communicate directly with a person, or needs such contact at any point in the communication, he may accomplish it simply by pushing the asterisk button (\*) at the terminal T1. Such action forms an abort signal that is detected by the processing unit 92 to transfer the communication to the interface terminal IT (FIG. 1). Alternatively, the customer may be asked (by voice cue) to provide detailed information as name, address, etc. which is recorded for later processing.

After the preliminary information is supplied to a caller, the qualification phase is initiated. For example, the interface 20 might actuate the terminal T1 to announce: "Please indicate the type of credit card you will use for your purchase by pushing the button number 'one' for Mastercharge, 'two' for . . ."

The caller's response, indicating a specific credit card, will be stored in a data cell; however, the data is developed initially in the buffer 97. The format and data for the present example (in the buffer 97) will be explained with reference to a storage block format 104 as illustrated in FIG. 5. The first data block 130 accordingly registers a digit to indicate the card that will be used to support the caller's purchase.

Using voice prompt, the interface 20 next instructs the caller to use the telephone buttons to indicate his credit card

5,815,551

11

number and the expiration date of the card. That data is stored in the register **104**, specifically in the blocks **132** and **134** as illustrated in FIG. 5.

Next, the caller is asked for his customer number, as it may appear on his catalog. That number is stored in a block **136** of the block format register **104**. Note that the caller may not be identified in the files of the mail-order house and in that event, the operation may be shifted to a manual operation to be continued through the interface terminal **IT** (FIG. 1) as explained above. For a television-initiated mail-order transaction, other numerical codes might be employed as to key into broadcast schedules. For example, a code might be used to indicate program times and thereby enable evaluation of the productivity of such program times. Such operation may be performed during the designation phase as described below.

To continue with the explanation of the automated format, assume that the customer has a file customer number and that it is stored in the block format register **104** along with his credit card number and expiration date. From that location, the data is checked by the qualification unit **93** (FIG. 4) for propriety as part of the test or qualification phase of operation. The check or test is in two stages and both are performed during an interval designated **t1**, the qualification unit **93** operating under control of the processing unit **92**.

First, the data is verified as representing valid and proper data formats for the customer's number, the credit card number and expiration date. The second operation involves consulting a so-called negative list to assure that the identified card and customer's number have not been cancelled, as for example in the case of credit cards that have been lost or stolen. Detailed structure for such tests is described in the parent case from which this case continues and may be incorporated in the qualification unit **93**.

With the successful completion and verification of the preliminary data in the block format register **104**, the qualification phase of operation is concluded and the system next interfaces with the caller to acquire and process data for a specific order of merchandise. Note that in the mail-order operating format, the sequence of the call is not normally significant. However, the sequencer **94** may log the time during a period **t2** if deemed worthwhile.

Somewhat as described above in relation to the initial operating format (health poll), the voice generator in the interface **20** prompts the caller through a series of exchanges that load the storage block format register **104** with a merchandise order. Thus, as purchase items are confirmed, the register **104** is loaded as exemplified by the blocks **140** and **142**. The interchange continues until the customer indicates he does not wish to order any additional items. The system then operates the designation unit **96** (FIG. 4) during the interval **t3** to develop and announce the acknowledgement digits as stored in the block **144** (FIG. 5). The acknowledgement digits serve to identify the order both for the caller and the mail-order house. Accordingly, tracing is facilitated. The data (FIG. 5) is then transferred from the buffer **97** (FIG. 4) to a select memory cell **C1-Cn**.

During the next interval **t4**, the processing unit **92** (FIG. 4) isolates data of the cells **C1-Cn** to facilitate the mail-order process. In that regard, the processor **92** may incorporate structure and processing techniques as disclosed in the parent case.

Of the wide variety of other operating formats and applications in accordance herewith, further examples will now be described with reference to the systems of FIGS. 1 and 4. However, from a consideration of the operating formats treated below, it will be apparent that certain structural

12

elements have reoccurring significance in the combination. Specifically, such elements include the structures: (1) utilizing the called number to select a specific operating format, (2) for screening or selecting callers who will be accepted based on various criteria, (3) for designating callers in a manner to enable subsequent positive identification and (4) various processing aspects of the data manipulations including the provision of at least a portion of certain ID data provided directly from the telephone apparatus. With respect to the data processing, distinctive elemental features include the utilization of external data not available during the interval of gathering data, the utilization of an interrelationship between the composite data collected during a data acquisition period, and the operation of utilizing time or sequence of callers to accomplish a subset.

As the next illustrative operating format, an instant lottery system will be described. Accordingly, assume the existence of a legalized state lottery accommodated by the telephone system utilizing a pay-to-dial number ("(213) 976-xxxx") and restricted to a limited number of uses for defined intervals of time. For example, a person might be entitled to play the lottery a limited number of times or to the extent of a limited dollar value during a predetermined interval.

From the terminal **T1** (FIG. 1) the caller would actuate the push buttons **14** to establish contact with the processing system **P1** coupling would be through the communication facility **C**, the automatic call distributor **AC1**, the interface **20** and the switch **21** as described in detail above. The initial operation then involves qualification of the caller to participate in the instant winner lottery. Again, ANI or caller interface techniques may be employed. If the caller is involved, the interface **20** is actuated by the qualification unit **93** during the operating interval **t1** to instruct the caller: "Please key in your telephone calling number". As indicated above, an alternative involves the system simply registering the calling number on the basis of its provision by ANI equipment.

In any event, after the caller's telephone number is registered, the instruction is given: "Participation in instant winner lottery is for persons over twenty-one years of age. Accordingly, please key in the year of your birth". A driver's license or credit card number may be similarly registered to confirm age. Alternatively, the combination of telephone number and date of birth could be used. In any event, the caller's data is registered and the qualification unit **93** then functions to test the data as provided. Specifically, the caller's telephone number is checked in a look-up table **99** to determine whether or not it is a proper and currently valid number for use in the lottery. Concurrently, the number is checked by the use-rate calculator to determine the number of times it has been used in excess of a predetermined number of calls or dollar value to participate in the lottery during a current interval of monitoring.

If the data indicates a qualified caller, the system proceeds to the next phase of designating the transaction. Note that the sequence is not significant in this operating format with the consequence that the interval **t2** and the operation of the sequencer **94** may be bypassed. Rather, the designation unit **96** operates during the interval **t3** to provide the caller with a designation for the current transaction and if applicable, updates the file as to current use or dollar value remaining for the caller's use. As explained above, the random generator **101** with or without the encryptor **102** may be employed to create an identification number which may include an encrypted form of the caller's telephone number. Accordingly, data for the transaction is established in the buffer **97** then set in a cell of the memory **98** (FIG. 4).

5,815,551

13

Specifically, the completed data cell format might be as follows: Telephone No.-Birth Year-Designation-Random No.

The system next functions to generate the random number as indicated above which will then be tested against a series of other numbers to determine whether or not the caller is a winner. In that regard, elements in the processing unit 92 which accomplish the operation are illustrated in FIG. 6 which will now be considered in detail.

A random number generator 160 functions on command to provide a three-digit number. With the consummation of a call, the random number generator 160 is actuated to provide the caller's random number in a selected caller cell 162. From that location, the caller's random number is compared with numbers from a register 164 by a comparator 166. The numbers in the register 164 were previously passed through a gate 174 from the generator 160. In the event of coincidence, the comparator provides an output "yes" signal to a line 168. Conversely, the failure of coincidence prompts the comparator 166 to provide a "no" output to a line 170. Essentially, a "yes" indicates a win while a "no" indicates the caller has lost.

The elements of FIG. 6 provide a random operating format to determine winners on a somewhat statistical basis; however, the system increases the probability with the passage of time when no win occurs. In that regard, at the outset of an operating cycle, the random number generator 160 provides a random number that is passed through the gate 174 to the register 164. In the exemplary format, a three-digit number would be provided. At that stage, the caller's random number, from the cell 162, would be compared with the single number in the register 164 by the comparator 166. However, with the passage of time, calls are tallied or time is metered by a counter 178. Accordingly, upon the attainment of a predetermined count, the gate 174 is again qualified to enter another number in the register 164. Accordingly, an increasing set of numbers are held in the register 164 for comparison with each caller's number. Of course, the more numbers in the register 164, the higher probability of a caller winning and that relationship depends upon the duration or number of calls since the last winner.

Either a win or a loss as indicated within the processing unit 92 (FIG. 4) prompts the interface 20 to respond appropriately to the caller announcing his results. If there is a win, the designation may be reinforced and additional identification may be taken as explained above. Of course, if the prize simply involves a credit on the caller's telephone bill or his credit account, identification and designation become less critical considerations.

In the event of substantial awards to be claimed, the processing system P1 (FIG. 1) may actuate the printer PR to produce a positive identification of the winner, which document may be redeemed only by the caller providing the assigned designation along with confirmation of his identification data.

Generally in relation to awards, the processing unit 92 may also utilize a random number format for determining the significance of awards. That is, a random number may be actuated to provide numerals from one through twenty, for example, the magnitude of the number generated for a caller indicating the significance of his award. Normally such information would be provided to the caller and registered in his memory cell.

With respect to memory cells generally, it is to be noted that actuated memory cells may be cleared for callers who are not winners. Accordingly, a limited number of memory cells store the subset of winners for subsequent confirmation processing and so on.

14

As another operating process format in accordance with the present invention, consider an auction sale. As disclosed herein, the auction format is associated with television as, for example, in the form of a cable channel for dedicated use during an interval of an auction sale.

Preliminarily, in accordance with the disclosed exemplary format, persons wishing to participate in the auction sale would make preliminary arrangements involving utilization of the system to establish authorization data for qualified bidders in cells C1-Cn of the memory 98 (FIG. 4). In an alternative format, the bidders could simply be qualified immediately before bidding, as on the basis of a charge-card number or other identification.

Generally, it is contemplated that callers are coupled into the system only during the bidding on specific items of merchandise. Accordingly, some prequalification may be desirable to facilitate the rapid accumulation of a bidding group with the introduction of a unit of merchandise.

In accordance with the disclosed format, an auctioneer conducts the sale in a somewhat traditional manner, recognizing that he is interfacing a relatively large audience through the system of the present invention and with a television connection. Specifically, the auctioneer is cued as to audience reaction by a monitor incorporated in the command computer terminal CT (FIG. 1). Essentially, the auctioneer is given an abstract or summary of the relative bidding as the auction progresses. In one format, the caller sees the auction on a television receiver. That is, the monitor may be covered by a television camera to inform the audience and particularly interested bidders. Consider the detailed steps of the operation.

As the auctioneer announces the next item for sale, it is televised to potentially interested bidders. In addition to being informed of the merchandise, potential bidders might also be reminded of the telephone number for participating in the auction. Accordingly, any interested person at a remote terminal T1-Tn may dial the auction number and obtain access to the processing systems P1-Pn. The caller would have a television set available, tuned for example to a cable channel.

Any preliminary qualification as indicated above will then be performed along with any appropriate designation. With regard to the designation, unless callers are identified as part of the qualification step, the designation unit 96 (FIG. 4) assigns a limited-digit number to individual callers for use by the auctioneer interfacing the command computer and terminal CT. Further designation and sequencing as disclosed herein also constitute part of the process. To the extent that qualification and designation operations may be performed, the operations are performed as described above with reference to FIG. 4 by the qualification unit 93 and the designation unit 96. Of course, any of the safeguards and limitations as described herein may be employed as deemed appropriate for an auction format.

After the preliminaries, the auctioneer initiates the bidding with respect to a particular item that is observed by the callers on a television receiver as through a cable channel. Note that the audio may be variously coordinated through the telephone communication facility C and the audio channel of the caller's television. In a simple format, after an introductory phase, communication to callers with respect to the bidding is provided through the television link. Alternatively, the audio unit AD (FIG. 1) may be employed.

Essentially, the auctioneer initiates the bidding by stating an initial value for the opening bid. Callers are invited to bid by actuating the push buttons 14 (FIG. 1). For example, the auctioneer may invite an initial bid of one hundred dollars

5,815,551

15

asking callers to so bid by entering an asterisk (\*) by punching the button so designated. In accordance with one operating format, cells in the memory 98 (FIG. 4) are actuated to register the bidding number in identified relationship with several calls. Note that although a record may be desirable, it is not usually necessary to record all bids, particularly at initial bidding figures. In any event, the individual processing units, e.g. unit 92 in individual processors PR1-PRn are interconnected (FIG. 1) and operate to select the final and key bids.

After attaining the initial bid, the auctioneer may invite further bidding by seeking a bid of two hundred dollars or any bid. Such a bid might be accomplished either by punching the asterisk button to attain the solicited bid, or by using number buttons to enter a different bid, e.g. two hundred fifty by buttons "2", "5" and "0". Again, cells of the memory 98 are actuated to record select bids (sequence) at the higher value.

The status of the bidding is presented to the auctioneer by the monitor of the command computer terminal CT (FIG. 1). Specifically, the auctioneer is provided an indication of the number of bidders at each level. If a sizeable number of callers bid at a specific value, the auctioneer may wish to advance the price significantly for the next round of bidding. Thus, the auctioneer proceeds until a small group of remaining callers are addressed. Note that the display of the command terminal CT (FIG. 1) may also inform the auctioneer of fresh bidders.

As the selection process proceeds, signals from the clock CL (FIG. 1) are introduced to indicate the sequence of bidders. For example, assume the bidding has proceeded to a stage where only three bidders remain active. The auctioneer is informed by the command terminal CT of the order in which the callers made their bids. The sequence is also of record in the cells of the memory 78 (FIG. 4) to indicate the sequence in the event that the final bid involves more than one caller. Of course, the first caller to respond with a bid would have priority in the purchase.

Normally at the conclusion of the bidding on a particular item, the contents of the cells in the memory 98 would be purged with only the final bidders being held in general memory within the processing unit 92. Of course, it is important to maintain a record of back-up bidders in the event the sale is not consummated with respect to the first of the highest bidders. That is, a subset of the highest bidders is preserved for each item of merchandise in the event that the highest bidder fails to qualify or the sale otherwise cannot be consummated. Of course, a distinct advantage of the system is the ability to accommodate a vast auction participation group for items of substantial value and as a consequence the distillation of a subset of callers is exceedingly valuable information.

To consider another operating format in association with the television media, a system will now be described whereby television viewers participate on a real-time basis in a game show for prizes. The ability to involve television viewers in a program has the potential of expanding program interest along with the expanded participation.

Game shows in accordance herewith may take any of a wide variety of forms as several well known programs in which studio contestants compete for prizes. In utilizing the system of the present invention to involve remote participants, it may be desirable to preliminarily qualify and designate callers as explained above. Specifically, prior to participating in an actual game show, interested participants interface the system as depicted in FIG. 1, and in the course of an exchange as described above, the qualification unit 93

16

and the designation unit 96 cooperate with the processing unit 92 to accomplish preliminary data on potential participants in cells of the memory 96.

Various games will involve different screening processes and clearances. For example, a child's television game format may require parental clearance and in that regard written communication may be required for approvals. Such approval may require the assignment of a personal identification number to the child player as qualifying identification data.

As explained above, clearances may be perfected through the look-up table 99 (FIG. 4) in association with the qualification unit 93 or approvals through a consumable key step may be extended to incorporate functions of the processing unit 92 in association with the memory 98. For example, if qualification simply involves a check-off operation, the look-up table 99 will normally be employed. However, in the case of preregistration for a participant, as in the case of the auction sale, the memory 98 is involved with the qualification unit 93 through the processing unit 92 to establish a data cell C1-Cn for each qualified participant. Thus, each potential participant to be qualified interfaces with the processing unit 92 during a preliminary interval of operation to provide data in one of the cells C1-CN to facilitate qualification for participation during a real-time game show.

At the time of the show, callers are qualified simply by reference to their assigned memory cell data for a verification. Thereafter, the caller's exchange information to supplement their data as with respect to the play which follows. Specifically for example, a caller might select a studio audience participant with whom the caller is to be allied. The interface operation may be essentially as described above wherein a voice generator in the interface 20 (FIG. 1) provides signals which activate the remote telephone unit to speak the instruction: "If you wish to play with Player No. 1, please push button No. 1; if you wish to play with Player No. 2, please push button No. 2 . . . and so on". The caller may also be instructed to indicate the extent of a wager. For example, "Push the number button indicating the points you wish to risk".

The participant data is stored in an assigned cell of the memory 98 (FIG. 4) for the caller and as the game proceeds, the processing unit 92 tallies the caller's score. Scores are interrelated between individual processing units to actuate the terminal CT. Thus, individual accounting occurs for each of the calling participants on an on-line basis dependent upon the success of the studio players and their association with the callers. On-going accounting data may be provided at intervals or real time by the recorded voice to each contestant.

According to the described format, after an interval of play, the processing units, as the unit 92 (FIG. 4), operate to isolate a subset of caller-players who have amassed the highest scores. Of course, various arrangements may be provided for awarding prizes to the select subset of winning callers.

The above format involves a real-time game show with an on-line operating format. A somewhat similar format involves nonreal-time operation and in that sense, callers may interface with the system of the present invention before and after the show; however, not primarily during the show. Such a show might involve a quiz for callers based on their ability to perceive and remember occurrences within the show. Preregistration may be employed, however, is not essential. Rather, callers may call after the broadcast of a program. In that event, sequence or time clocking may be

5,815,551

17

very important to limit or control individual interfaces to a specific time or geographic "window". That is, as suggested above, allocation-routing equipment and techniques may be employed in various of the formats to window callers. With the system, callers are screened or qualified at the time of a call, identified in a particular calling sequence, designated for identification and quiz answers are given for subsequent processing. Alternatively, players could participate by providing their credit card for billing or be billed through the "pay-to-dial" network. Consider an exemplary format.

A key to participation in the game show may involve the purchase of a particular product. For example, a person desiring to participate may purchase a product which carries a concealed key number. The number serves as a caller's key to participation in the game show.

In accordance with the disclosed operating format, after watching the broadcast of a television show (possibly a serial episode) the participant actuates the push buttons 14 at one of the remote terminals T1-Tn to accomplish an interface communication with the select operating format. For example, the caller may actuate the buttons 14 for the station number "277-7777" which identifies the game format of current description.

Assume responsive operation of the communication facility C to couple the caller through the automatic call distributor ACI to the interface 20.

Upon establishing a connection, the interface 20 receives the caller's telephone number through ANI equipment and a data cell in the memory 98 (FIG. 4) is assigned to the caller. Specifically, for example, associative coupling is provided for the caller through the switch 21 (FIG. 1) to the processor PRI containing the memory 98 (FIG. 4) and a cell C2 assigned to the caller. A block format 200 is illustrated in FIG. 7 indicating the data that is developed in the cell C2. At the outset, the caller's telephone number is stored in a section 201 followed by uses/month in section 202.

Next, the caller is greeted and requested to give the key number entitling him to participate in the game show. The instruction constitutes an initial action to take place in an interval of qualification during the time t1. The caller actuates the buttons 14 providing digital representations to the qualification unit 93 (FIG. 4) and the look-up table 99 is consulted. Note that the table 99 may be a large, shared unit that tabulates each of the key numbers and accounts for their use. If the caller has identified a proper key number, the process proceeds and the key number is accounted, i.e. incremented or decremented to the limit of use if any. Alternatively, a repeat information operation may be requested as described in detail above.

As a further check during the qualification stage, the use-rate calculator 100 may function to determine whether or not an excessive number of calls have originated from the designated number. Thus, consideration involves calls or value with reference to a predetermined period of time. Again, a shared calculator may be used or addressing may obtain selectivity on the basis of calling numbers. If a large number of calls have originated from a single telephone terminal, a fraudulent situation may be suggested. Assuming no such indication occurs, the number of uses is registered in a section 200 (FIG. 7) and the operation proceeds from the interval t1 to interval t2.

During the interval t2, the sequencer 94 registers the precise time of the call in the buffer storage 97, specifically in a section 204 as illustrated in FIG. 7. With the entry of such data, the system passes from the operating interval t2 to t3.

The caller is next asked to identify himself in some specific manner. For example, the caller may simply be

18

asked to provide the year of his birth. Alternatively, somewhat comprehensive information may be taken as in the form of drivers' license numbers, social security numbers and so on. Of course, such data may be employed for subsequent identification of the caller and, accordingly, is registered in the buffer storage 97 (FIG. 4). Specifically, identification information is registered in section 206 of the block 200 as shown in FIG. 7.

In addition to receiving identification information from a caller, the system assigns a designation to the caller: Specifically, the random number generator 101 (FIG. 4) provides a number which may be encrypted along with other identification data as the caller's personal identification to provide a numerical designation that is registered in the storage 97. Specifically, the designation is stored in a section 208 as illustrated in FIG. 7. With the designation operation complete, the interval t3 terminates initiating the data accumulation phase which occurs during an operating interval t4.

At this juncture, operating elements within the processing unit 92 will be considered in relation to an explanation of the manner in which select questions are provided to a caller and his answers received and recorded for subsequent processing to determine winners.

Preliminarily, reference will be made to FIG. 8 showing elements involved in the operating format which are contained in the processing unit 92 (FIG. 4) in association with the memory 98. To avoid confusion, the elements identified in FIG. 8 are designated by fresh numerals.

To accommodate the exemplary operating format, a dramatic program might be recorded preparatory to the television broadcast. A substantial number of questions would then be formulated based on the dramatic program. For example, "How many people were present when the will was read?"

It is contemplated that the dramatic program would be broadcast to different geographical segments of the country during different time intervals. To accommodate the different time intervals, it is proposed to utilize different questions for each geographic segment. That is, the basic format can remain the same, only the questions change by time zone to avoid study and collaboration on questions as a result of time shifts. A question propounded to a Chicago caller should not be repeated to a Los Angeles caller. In any event, callers might be given three questions randomly drawn from a pool serving one geographic segment and three questions drawn from a different pool serving another geographic segment.

The signals for prompting a voice generator are registered in memory sections MS1 through MSn. Each of the memory sections MS1-MSn is served by an address input AI1-AIn respectively. Similarly, the address inputs AI1-AIn are instructed by random number generators NG1-NGn, in turn actuated by decoders DE1-DEn. Consider the operating sequence of the memory MS1 as an example.

The decoder DE1 is responsive to telephone calling numbers (provided by ANI equipment) indicative of a particular geographic area. Note, for example, that area code numbers afford an effective geographic classification of callers which is very useful in many formats or processes of statistical analysis in accordance herewith. Note that geographic (or other) classification in accordance herewith is also accomplished by the called numbers provided. Each of several television stations would solicit calls for different numbers as a result, either by DNIS or call channeling. Select processors would be reached through the interface units, e.g. interface 20 FIG. 1. In operation, the decoder DE1 determines a call is from a specific geographic area and accordingly provides a signal to actuate the random number

5,815,551

19

generator NG1. As a consequence, the random number generator NG1 provides a series of three random numbers in the form of addresses for the memory MS1. That is, the addresses may simply comprise three alphanumeric bits supplied to the address input A11 to prompt the provision of three sets of voice generator signals for announcing the three questions in sequence. For example, the first question might be as suggested above: "Push the button on your telephone for the number of persons present in the room when the will was read".

The voice generator signals are supplied from the memory MS1 (within the processing unit 92, FIG. 4) to the interface 20 (FIG. 1) which generates audio signals to actuate the caller's hand piece 10. Accordingly, the caller is instructed to answer three questions, the responses being recorded in a section 210 of the data block 200 (FIG. 7). Note that the clock 105 (FIG. 4) may be utilized to limit the response period allowed each caller.

As indicated above, to accommodate broadcast of the program in a different time slot for a different geographic area, the decoder DEN (FIG. 8) actuates the random number generator NGn to address the memory MSn to provide three different questions as a result of a random selection. Accordingly, within a time or times (perhaps limited and offset) after the conclusion of the program, a substantial number of callers are accounted for in cells of the memory 98 and similar units of the composite system. The cells indicate sequences of calling and also may contain billing data where appropriate. That is, pay-to-dial operations avoid the need for billing, yet it may still be made of record.

Subsequent to the data accumulation phase of operation, the processing unit 92 (and its equivalents) is actuated during an off-line processing interval to isolate the subset of callers correctly responding to the questions. In accordance with one format, the subset of successful callers may be reduced to a sub-subset as by a random computer "draw" to define a group of significant winners. That is, a random number generator may be employed as explained above.

As an alternative to subsequent processing, the system may inform callers of their success during the course of the interface telephone call. That is, callers might simply be informed by cuing the voice generator: "Your answers are correct and in accordance with the program game, you will now be entered in the sweepstakes draw for the prize . . . ." Thus, the format defines a subset then further selects a sub-subset of winners. In any of the various formats, the status of the analysis can be televised by selecting a camera focused on the interface terminal IT.

Still another operating format for the system takes the form of polling operations to determine opinion or facts. An illustrative form of the format is disclosed below again in association with a television broadcast.

Generally, the illustrative polling format is contemplated in association with a television broadcast addressing a matter of current interest as, for example, a political issue or election. A master of ceremonies propounds questions to a viewing audience, many of whom are on-line through an interface of a system of the present invention. The master of ceremonies or commentator instructs the callers who are regulated and controlled by the system of the present invention to provide digital data which the system processes to inform the commentator as with regard to subsets of callers. For example, the commentator may be statistically informed as to the numbers of callers holding specific views. Consider a specific exemplary operating format.

Assume the existence of a system in accordance with the present invention installed for use in association with a

20

television broadcasting facility. Of course, various previous arrangements could be involved; however, according to one arrangement a commentator simply invites members of the viewing audience to call a specific number and express their views with respect to a specific issue. Callers located at terminals T1-Tn (FIG. 1) activate the terminals to accomplish an interface with one of the processing systems P1-Pn as explained above. Note that the processor (or the interface 20 may involve operation of the qualification unit 93 (FIG. 4) to prevent callers from loading the poll. That is, to prevent multiple calls from a single terminal that would distort a poll, the qualification unit 93 registers calls in association with the use-rate calculator 100. Interfacing a specific processor, callers are screened by the qualification unit 93 (FIG. 4). In such a poll, it may be important to control the sampling group on a statistical basis. For example, it may be desirable to limit callers from each of several geographic areas. Accordingly, by the use of ANI equipment, the caller's telephone number is provided to the qualification unit 93 during the preliminary interval t1, and a determination is performed with regard to the number of involved callers from the geographic area using the look-up table 99. On attaining a full quota from a specific area, a subsequent caller may be informed that the lines are full. Alternatively, the caller may be requested to provide his telephone number for screening in the event ANI equipment is not available.

The caller may be requested to provide additional information so as to poll a balanced group. For example, a caller might be asked questions concerning age, political registration and so on by prompting the interface unit 20 to pose audio questions and testing the digital results through the qualification unit 93 as with reference to the look-up table 99.

As indicated above, in the event that the broadcast television program is one of a series, it may be desirable to limit the extent of participation over a period of several programs. Accordingly, the use-rate calculator 100 (FIG. 4) may be employed in association with the qualification unit 93. That is, if a calling number has participated in a prior poll, it may be denied access for a subsequent poll or its data not counted. Such operation would involve the use-rate calculator 100 in association with the qualification unit 93 performing logic tests to actuate the voice generator of the interface 20 for providing an appropriate interchange with a caller.

With the screening or qualification of a select group of callers, the sequencer 94 (FIG. 4) may or may not be involved to identify the order of callers. Also, the designation unit 96 may or may not be involved in view of the fact that for many polls there is little interest in subsequently identifying callers.

In the poll-format operation of the system, it is important to provide a capability of defining select intervals during which callers may provide data. In one arrangement, with the consummation of a communication interface between a caller and a processor unit, the audio of the television broadcast is keyed from the audio unit AD through the switch 21 (FIG. 1) for communication to the caller.

With a multiplicity of callers in interface relationship with the processors PR1-PRn as function units, a polling question is stated, for example: "If you favor expanded trade with . . . at the tone press button one; if you do not, press button two".

To control the interval of polling, the command computer terminal CT (FIG. 1) is actuated to enable the callers timely access to the processors.

At the expiration of a polling interval, the interfaces may be terminated or additional questions may be propounded. In

5,815,551

21

any event, subsequent to the data-gathering phase, the bulk data is supplied to the command computer terminal CT incorporating computing facility to isolate subsets for communication by the broadcast. Accordingly, an effective on-line poll can be conducted with statistical sampling control and prompt display of responses.

As explained above, the arrangement of the function unit (or units) may be variously embodied in a single processor or many processors, depending on various considerations as time sharing, multiplexing, paralleling and so on. The systems as described above embody the components bulked together in one location. However, components of the system could be spaced apart geographically, using dedicated lines or polling techniques. An illustrative embodiment is shown in FIG. 9.

Call distributors CD1-CDn are at different geographic locations along with associated interface units IA1-IAm and IB1-IBn. Each of the interface units, as unit IA1 is coupled to a central processor 251 as indicated by lines 252, 254, 256 and 258. Each of the lines may take the form of a dedicated telephone line or a polling telephonic coupling.

In the operation of the system of FIG. 9, the call distributors CD are coupled to a telephonic communication system and accordingly allow the interface units I to provide interface communication between the central processing unit 251 and a multitude of remote terminals T1-Tn as illustrated in FIG. 1. With data accumulated in the cells, it may be variously down loaded as to a central processing station. Thus, the distributed-component system is capable of executing the various formats as explained above with reference to the illustrative structure.

In view of the above explanation of exemplary systems, it will be appreciated that other embodiments of the present invention may be employed in many applications to accumulate statistical data, process such data, and define subsets of callers of concern. While certain exemplary operations have been stated herein, and certain detailed structures have been disclosed, the appropriate scope hereof is deemed to be in accordance with the claims as set forth below.

What is claimed is:

1. A system to be utilized with a telephone facility for on-line handling of customer data contained in a memory in accordance with a select operating format comprising:

a plurality of call distributors for routing calls based upon availability wherein said plurality of call distributors are located at different geographic locations, said plurality of call distributors receiving called terminal digital data (DNIS) signals automatically provided by said telephone facility to identify said select operating format from a plurality of distinct operating formats and automatically receiving caller telephone number data from said telephone facility;

an operator terminal for use by a person to communicate through the telephone facility;

interface switching means connected to said plurality of call distributors and said operator terminal for receiving incoming calls routed by said call distributors;

computer means coupled to said interface switching means for connecting an incoming call by a caller to said operator terminal based on a condition, said caller telephone number data being stored in said memory such that said computer means in accordance with said select operating format is capable of accessing said customer data on a selected customer which has a telephone number corresponding to said caller telephone number data automatically provided from said telephone facility, said computer means visually dis-

22

playing said customer data on a selected customer and said operator terminal capable of providing data entries to said memory; and

said customer data on a selected customer contained in memory is updated by incorporating said data entries into said customer data.

2. A system to be utilized with a telephone facility according to claim 1, further comprising:

voice generator structure coupled to said interface switching means for prompting callers to enter digital data.

3. A system to be utilized with a telephone facility according to claim 1, further comprising:

qualification structure coupled to said computer means for testing said customer data.

4. A system to be utilized with a telephone facility according to claim 3, wherein said qualification structure tests a caller provided PIN number.

5. A system to be utilized with a telephone facility according to claim 1, wherein said operator at said operator terminal enters data relating to said caller.

6. A system to be utilized with a telephone facility according to claim 1, wherein said operator terminal is provided with a display of data relating to said select operating format under control of said called terminal digital data (DNIS) signals.

7. A system to be utilized with a telephone facility according to claim 1, wherein said customer data on said selected customer includes data relating to a limit on use.

8. A system to be utilized with a telephone facility according to claim 7, wherein said limit on use specifies a predetermined number of uses.

9. A system to be utilized with a telephone facility according to claim 7, wherein said limit on use specifies a one time only use.

10. A system to be utilized with a telephone facility according to claim 7, wherein said limit on use specifies a use relating to a dollar amount.

11. A system to be utilized with a telephone facility according to claim 7, wherein said customer data on a selected customer includes data based on a specified limit on a number of calls from said caller during specified multiple intervals of time wherein said specified limit is automatically refreshed at the beginning or the end of each of said multiple intervals of time.

12. A system to be utilized with a telephone facility according to claim 7, wherein said limit on use specifies an extent of access.

13. A system according to claim 7, wherein the plurality of call distributors located at the different geographic locations are interconnected to said memory which is centrally located to receive, the customer data entered by said operator terminal and update the customer data.

14. An analysis control system for use with a communication facility including remote terminals for individual callers, wherein each of the remote terminals comprises a telephonic capability including voice communication means and digital input means in the form of an array of alphabetic numeric buttons for providing data, the analysis control system comprising:

interface structure coupled to the communication facility to interface the terminals for voice and digital communication and including structure to provide signals representative of data developed by the terminals;

voice generator structure selectively coupled through the interface structure to the terminals for providing vocal operating instructions to individual callers;



5,815,551

**23**

record memory connected to the interface structure for updating a file and storing data relating to certain individual callers;

qualification structure to access the record memory to test key number data provided by the individual callers to ensure that the key number data is valid;

generator structure selectively coupled to the interface structure and the record memory for providing computer generated numbers to the individual callers and storing the computer generated numbers in the record memory; and

analysis structure connected to the record memory for processing at least certain of the data relating to certain individual callers subject to qualification by the qualification structure.

15. An analysis control system according to claim 14, wherein said qualification structure further tests the key number data with respect to a predetermined limit on use.

16. An analysis control system according to claim 15, wherein the limit on use relates to a number of times the individual callers are entitled to call.

17. An analysis control system according to claim 15, wherein the limit on use relates to a dollar amount.

18. A control system according to claim 14, further including means to control processing formats of the analysis structure in accordance with signals automatically provided by the communication facility indicative of one of a plurality of called numbers (DNIS).

19. A control system according to claim 18, wherein the data relating to certain individual callers includes calling number identification data for certain individual callers automatically provided by the communication facility.

20. A control system according to claim 14, wherein the computer generated numbers provided to callers are indicative of sequence data.

21. A system to be utilized with a telephone facility for on-line handling of customer data contained in a memory in accordance with a select operating format comprising:

a plurality of call distributors for routing calls wherein said plurality of call distributor are located at different geographic locations;

an operator terminal for use by a person to communicate through the telephone facility;

a plurality of interface switching structures located at different geographic locations and connected to the plurality of call distributors and the operator terminal for receiving incoming calls routed by said plurality of call distributors based on call allocation routing data and for receiving called terminal digital data (DNIS) signals automatically provided by the telephone facility to identify the select operating format from a plurality of operating formats; and

processing means connected to the plurality of interface switching structures for receiving customer number data entered by a caller and for storing the customer number data in a central memory accessed by said plurality of interface switching structures and based on a condition coupling an incoming call to the operator terminal, the processing means visually displaying the customer number data, the operator terminal providing other data entries to the central memory to update data relating to the caller.

22. A process for controlling operations of an interface with a telephone communication system, the process including the steps of:

providing key numbers specifying limits on use to entitle individual callers to access the operations of the interface with the telephone communication system;

**24**

coupling remote terminals to the interface for providing voice signals to the individual callers;

receiving the key numbers as digital identification data in the form of terminal digital data automatically provided by the telephone communication system for the individual callers and additional data provided from the remote terminals under control of the individual callers;

qualifying the individual callers by testing to determine if the individual callers are entitled to access the operations of the interface by testing the key numbers for the individual callers with stored key numbers to ensure their validity and further testing the key numbers based on the limits on use specified for the individual callers and accordingly providing approval signals for qualified individual callers;

accessing a memory with the key numbers for the individual callers and storing data relating to calls from the individual callers; and

processing at least certain of the additional data responsive to the approval signals.

23. A process according to claim 22, wherein said coupling step includes generating the voice signals for actuating the remote terminals to provide vocal operating instructions to specific individual callers.

24. A process for controlling operations of an interface with a telephone communication system, the process including the steps of:

providing key numbers specifying limits on use to entitle individual callers to access the operations of the interface with the telephone communications system;

coupling remote terminals to the interface for providing voice signals to the individual callers;

receiving the key numbers as digital identification data in the form of terminal digital data automatically provided by the telephone communication system for the individual callers and answer data provided from the remote terminals under control of the individual callers;

qualifying the individual callers by testing to determine if the individual callers are entitled to access the operations of the interface by testing the key numbers for the individual callers with stored key numbers to ensure their validity and testing the key numbers based on the limits on use for the individual callers and accordingly providing approval signals for qualified individual callers;

accessing a memory with the key numbers for the individual callers and storing data relating to calls from the individual callers;

processing at least certain of the answer data responsive to the approval signals; and

providing on-going accounting data to the individual callers, the on-going accounting data for at least one of a plurality of intervals being determined at least in part by the answer data provided by an individual caller during a call and during at least one of the intervals includes real time data provided to the individual caller on-line.

25. A process according to claim 24, wherein one of the limits on use relates to a dollar amount.

26. An analysis control system for use with a communication facility including remote terminals for calls by individual callers, wherein each of the remote terminals comprises a telephonic capability including voice communication means and digital input means in the form of an array of alphabetic numeric buttons for providing data

5,815,551

**25**

and wherein the communication facility has a capability to automatically provide terminal digital data to indicate a calling number, the analysis control system comprising:

interface structure coupled to the communication facility to interface the remote terminals for voice and digital communication and including means to provide caller data signals representative of data relating to the individual callers developed by the remote terminals and the terminal digital data;

analysis structure for processing the caller data signals; structure for controlling the analysis structure in accordance with the terminal digital data; and

qualification structure to test the terminal digital data based upon a predetermined limit on use and further testing whether a call by one of the individual callers is being made during a limited period of time.

**27.** An analysis control system according to claim **26**, wherein the limit on use is a limited dollar amount.

**28.** An analysis control system according to claim **26**, further comprising:

voice generator structure to provide one of the individual callers with on-going accounting data related to the call.

**29.** An analysis control system according to claim **28**, wherein the on-going accounting data takes into consideration answer data provided by the callers.

**26**

**30.** An analysis control system according to claim **26**, wherein said analysis structure assigns sequential transaction number data to identify calls by individual callers.

**31.** A system according to claim **1**, wherein said telephone facility further comprises call allocation routing to limit or control individual interfaces to a specific time or geographic window.

**32.** A system according to claim **21**, wherein said processing means controls a limit on access to said select format based on prior use.

**33.** A system according to claim **21**, wherein said plurality of interface switching structures receive and store calling number identification signals automatically provided by said telephone facility.

**34.** A system according to claim **33**, wherein said calling number identification signals control at least in part processing of said customer number data entered by said caller.

**35.** An analysis control system according to claim **26**, wherein said interface structure provides on-going accounting data to the individual callers, the on-going accounting data for at least one of a plurality of intervals being determined at least in part by the answer data provided by one of the individual callers during a call and during at least one of the intervals includes real time data provided to one of the individual callers on-line.

\* \* \* \* \*



US005974120A

**United States Patent** [19]**Katz**[11] **Patent Number:** **5,974,120**[45] **Date of Patent:** **\*Oct. 26, 1999**[54] **TELEPHONE INTERFACE CALL  
PROCESSING SYSTEM WITH CALL  
SELECTIVITY**[75] Inventor: **Ronald A. Katz**, Los Angeles, Calif.[73] Assignee: **Ronald A. Katz Technology Licensing,  
L.P.**, Los Angeles, Calif.

[\*] Notice: This patent is subject to a terminal disclaimer.

[21] Appl. No.: **08/480,185**[22] Filed: **Jun. 7, 1995****Related U.S. Application Data**

[63] Continuation of application No. 08/132,062, Oct. 4, 1993, Pat. No. 5,828,734, which is a continuation of application No. 07/779,762, Oct. 21, 1991, Pat. No. 5,251,252, which is a continuation of application No. 07/425,779, Oct. 23, 1989, Pat. No. 5,128,984, which is a continuation-in-part of application No. 07/312,792, Feb. 21, 1989, Pat. No. 5,073,929, which is a continuation-in-part of application No. 07/194,258, May 16, 1988, Pat. No. 4,845,739, which is a continuation-in-part of application No. 07/018,244, Feb. 24, 1987, Pat. No. 4,792,968, which is a continuation-in-part of application No. 06/753,299, Jul. 10, 1985, abandoned, said application No. 08/132,062, is a continuation-in-part of application No. 08/306,751, Sep. 14, 1994, which is a continuation of application No. 08/047,241, Apr. 13, 1993, Pat. No. 5,351,285, which is a continuation of application No. 07/509,691, Apr. 16, 1990, abandoned, and a continuation-in-part of application No. 07/640,337, Jan. 11, 1991, which is a continuation of application No. 07/335,923, Apr. 10, 1989, which is a continuation of application No. 07/194,258, May 16, 1988, Pat. No. 4,845,739, which is a continuation-in-part of application No. 07/018,244, Feb. 24, 1987, Pat. No. 4,792,968, which is a continuation-in-part of application No. 06/753,299, Jul. 10, 1985, abandoned, said application No. 07/509,691, is a continuation-in-part of application No. 07/260,104, Oct. 20, 1988, Pat. No. 4,930,150, which is a continuation-in-part of application No. 07/018,244, Feb. 24, 1987, Pat. No. 4,792,968, which is a continuation-in-part of application No. 06/753,299, Jul. 10, 1985, abandoned.

[51] Int. Cl.<sup>6</sup> ..... **H04M 11/00**[52] **U.S. Cl.** ..... **379/93.13; 379/93.12;  
379/93.02**[58] **Field of Search** ..... 379/92, 97, 142,  
379/95, 207, 225, 127, 201, 211, 266, 265,  
91, 93.13, 93.12, 91.01, 91.02, 92.01, 92.03,  
93.02, 93.14, 88.16, 88.2[56] **References Cited****U.S. PATENT DOCUMENTS**3,644,675 2/1972 Walington .  
4,054,756 10/1977 Comella et al. .

(List continued on next page.)

**FOREIGN PATENT DOCUMENTS**1162336 2/1984 Canada .  
2009937-2 8/1990 Canada .

(List continued on next page.)

**OTHER PUBLICATIONS**

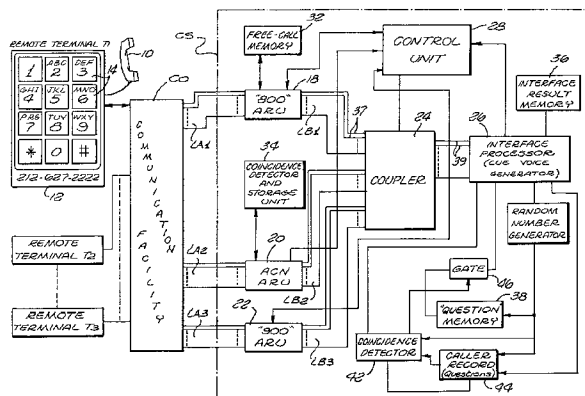
A page (p. 7) from literature on the Charles Schwab corporation, which is not dated nor identified (Exhibit A).

A page (p. 4) from an annual report dated Mar. 1, 1989, though the actual date on which the report was distributed to the public is unknown (Exhibit B).

(List continued on next page.)

**Primary Examiner**—Stella Woo**Attorney, Agent, or Firm**—Lyon & Lyon LLP[57] **ABSTRACT**

For use with a public telephone network CO incorporating a vast number of terminals T1-Tn, a system CS limits and controls interface access to implement voice-digital communication for statistical processing. The system CS accommodates calls in different modes; e.g. "800", "900" or area code and incorporates qualifying apparatus to restrict against caller misuse. Alternative calling modes are used to reach an interface facility that also affords some control based on calling terminal identification, e.g. as by ANI equipment.

**81 Claims, 2 Drawing Sheets**

5,974,120

Page 2

## U.S. PATENT DOCUMENTS

4,071,698 1/1978 Barger, Jr. et al. .  
 4,117,278 9/1978 Ehrlich et al. .  
 4,145,578 3/1979 Orriss .  
 4,162,377 7/1979 Mearns .  
 4,191,860 3/1980 Weber .  
 4,242,539 12/1980 Hashimoto .  
 4,335,207 6/1982 Curtin .  
 4,348,554 9/1982 Asmuth .  
 4,420,656 12/1983 Freeman .  
 4,555,594 11/1985 Friedes et al. .  
 4,559,415 12/1985 Bernard et al. .  
 4,580,012 4/1986 Matthews et al. .  
 4,582,956 4/1986 Doughty ..... 379/142  
 4,585,906 4/1986 Matthews et al. .  
 4,592,540 6/1986 Fascenda et al. .  
 4,611,094 9/1986 Asmuth et al. .  
 4,649,563 3/1987 Riskin .  
 4,652,998 3/1987 Koza et al. .  
 4,669,730 6/1987 Small .  
 4,694,490 9/1987 Harvey et al. .  
 4,697,282 9/1987 Winter et al. .  
 4,756,020 7/1988 Fodale .  
 4,757,267 7/1988 Riskin .  
 4,761,684 8/1988 Clark et al. .  
 4,763,191 8/1988 Gordon et al. .  
 4,764,666 8/1988 Bergeron .  
 4,785,408 11/1988 Britton et al. .  
 4,788,682 11/1988 Vij et al. .  
 4,788,715 11/1988 Lee .  
 4,788,718 11/1988 McNabb et al. .  
 4,797,910 1/1989 Daudelin .  
 4,797,911 1/1989 Szlam et al. .  
 4,797,913 1/1989 Kaplan .  
 4,815,741 3/1989 Small .  
 4,827,500 5/1989 Binkerd et al. .  
 4,842,278 6/1989 Markowicz .  
 4,850,007 7/1989 Marino et al. .  
 4,852,154 7/1989 Lewis et al. .  
 4,882,473 11/1989 Bergeron et al. .  
 4,894,857 1/1990 Szlam et al. .  
 4,897,867 1/1990 Foster et al. .  
 4,899,375 2/1990 Bauer et al. .  
 4,908,850 3/1990 Masson et al. .... 379/88  
 4,922,522 5/1990 Scanlon .  
 4,937,853 6/1990 Brule et al. .  
 4,942,598 7/1990 Davis .  
 4,942,599 7/1990 Gordon et al. .  
 4,969,185 11/1990 Dorst et al. .  
 4,972,461 11/1990 Brown et al. .  
 4,989,233 1/1991 Schakowsky et al. .  
 4,996,705 2/1991 Entenmann .  
 5,018,736 5/1991 Pearson et al. .  
 5,023,904 6/1991 Kaplan et al. .  
 5,046,183 9/1991 Dorst et al. .  
 5,097,528 3/1992 Gursahaney et al. .  
 5,128,984 7/1992 Katz ..... 379/92  
 5,146,491 9/1992 Silver et al. .  
 5,181,238 1/1993 Medamana et al. .  
 5,233,654 8/1993 Harvey et al. .  
 5,255,183 10/1993 Katz .  
 5,263,723 11/1993 Pearson et al. .  
 5,333,185 7/1994 Burke et al. .  
 5,353,335 10/1994 D'Urso et al. .

## FOREIGN PATENT DOCUMENTS

0 120 322 3/1984 European Pat. Off. .  
 0 568 114 A2 11/1993 European Pat. Off. .  
 0 229 170 B1 2/1994 European Pat. Off. .  
 0 620 669A1 10/1994 European Pat. Off. .  
 0 342 295 B1 3/1995 European Pat. Off. .

9002131 8/1990 France .  
 4005365 A1 8/1990 Germany .  
 63-500138 1/1988 Japan .  
 2-298158 12/1990 Japan .  
 3-41855 2/1991 Japan .  
 2 230 403 7/1993 United Kingdom .  
 WO87/00375 1/1987 WIPO .  
 WO89/02139 3/1989 WIPO .  
 WO93/05483 3/1993 WIPO .

## OTHER PUBLICATIONS

An early brochure based on a Mar., 1989, survey by Charles Schwab & Co., Inc. (Exhibit C).  
 A trademark scan (U.S. Federal) indicating a first date of use for Telebroker in Jun. 18, 1988 (Exhibit D).  
 "Machine Operation Manual", May 12, 1978, Issue 1, pp. 1-3, 9-10—(Manual).  
 Davey, J.P., "Dytel Western Region Sales Training Manual", 1985—(Manual).  
 Gutcho, Lynette, "DECTalk—A Year Later", *Speech Technology*, Aug./Sep. 1985, pp. 98-102—(Article).  
 Daniels, Richard, "Automating Customer Service", *Insurance Software Review*, Aug./Sep. 1989, pp. 60-62 —(Article).  
 Golbey, S.B., "Fingertip Flight Services", Oct. 1985—(Article).  
 "ARO Goes Pushbutton", *Newsletter*, Nov. 1985, p. 9—(Article).  
 "ROLM Centralized Attendant Services", *ROLM Corporation*, 1979.  
 "AIS, Versatile Efficient Information Service", *Fujitsu Limited*, 1972, pp. 153-162—(Brochure).  
 Smith, S.L., et al., "Alphabetic Data Entry Via the Touch-Tone Pad: A Comment", *Human Factors*, 1971, 13(2), pp. 189-190—(Book).  
 Holtzman, Henry, "Still an Infant Technology Voice Mail", *Modern Office Technology*, Jun. 1985, pp. 78-80, 82, 84, 90—(Article).  
 Leander, Monica, "Voice Response—A Technology for Solving Management Problems", *Speech Technology*, Mar./Apr. 1986, pp. 50-52—(Article).  
 Stolker, Bud, "CompuCorder speech storage and output device. (evaluation)", *Creative Computing*, Jul. 1983, pp. 1-7.  
 Witten, I.H., et al., "The Telephone Enquiry Service: a man-machine system using synthetic speech", *Int. J. Man-Machine Studies*, Jul. 1977, 9, pp. 449-464—(Book).  
 Gould, R.L., "Fidelity's Automated Voice Response System", *Telecommunications*, Jan. 1981, pp. 27-28—(Article).  
 "Fidelity Automated Service Telephone", *Fidelity Group*, 4 pages—(Manual).  
 Inquiry Letter To The F.C.C., From Attorneys For the Prior Title Holder Seeking Rulings That a Particular Game Would Not Be Considered a Lottery Under F.C.C. Regulations (Exhibit A).  
 Reply Letter From The F.C.C. To The Inquiry Letter Stating The Requested Rulings (Exhibit B).  
 Basinger, R. G., et al., "Calling Card Service—Overall Description and Operational Characteristics", *The Bell System Technical Journal*, Sep., 1982.  
 Confalone, D. E., et al., "Calling Card Service—TSPS Hardware, Software, and Signaling Implementation", *The Bell System Technical Journal*, Sep., 1982.  
 Eigen, D.J., et al., "Calling Card Service—Human Factors Studies", *The Bell Technical Journal*, Sep., 1982.

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000260

5,974,120

Page 3

- Lexis Search, Nov. 1, 1984, re: System 85 Computer Process.
- Lexis Search, Jan. 28, 1985, re: Rolm Releases Four-Channel Phonemail Voice Message Unit.
- Cox, Jr., Floyd, "Flora Fax", Jan. 22, 1986—(Letter and Advertisements).
- Moslow, Jim, "Emergency reporting system for small communities", *Telephony*, Feb. 11, 1985, pp. 30–32, 34—(Article).
- Press Release: "AT&T 2: Reaches Agreement with Rockwell (ROK)," Aug. 26, 1986.
- Adams, Cynthia, "Conversing With Computers", *Computerworld on Communications*, May 18, 1983, vol. 17, No. 20A, pp. 36–44—(Article).
- Advertisement: Cuervo Gold Beach Chair, VoiceMail Int'l, '83.
- Emerson, S.T., "Voice Response Systems—Technology to the Rescue for Business Users", *Speech Technology*, Jan./Feb. '93, pp. 99–103—(Article).
- Martin, James, "Design of Man-Computer Dialogues", *IBM System Research Institute*, Chapter 16, pp. 283–306—(Chapter from a Book).
- Kaiserman, D.B., "The Role Of Audio Response In Data Collection Systems", *Proceedings of the Technical Sessions*, Paleis des Expositions, Geneva, Switzerland, Jun. 17–19, 1980, pp. 247–251—(Article).
- A.J. Waite, "Getting Personal With New Technologies For Telemarketers," DM News, Feb. 15, 1987, p. 50 on.
- Yoshizawa, K., et al., "Voice Response System for Telephone Betting", *Hitachi Review*, Jun. 1977, vol. 26, No. 6—(Article).
- Brady, R.L., et al., "Telephone Identifier Interface", *IBM Technical Disclosure Bulletin*, Oct. 1976, vol. 19, No. 5, pp. 1569–1571—(Article).
- Mullen, R.W., "Telephone—home's 'friendliest' Computer", *Inside Telephone Engineer And Management*, May 15, 1985, vol. 89, No. 10,—(Article).
- Winckelmann, W.A., "Automatic Intercept Service", *Bell Laboratories Record*, May 1968, vol. 46, No. 5, pp. 138–143—(Article).
- Hester, S.D., et al., "The AT&T Multi-Mode Voice Systems—Full Spectrum Solutions For Speech Processing Applications", Sep. 1985, pp. 1–10—(Proceedings Of The 1985 AVIOS Conference).
- Moosemiller, J.P., "AT&T's Conversant™ I Voice System" *Speech Technology*, Mar./Apr. 1986, pp. 88–93—(Article).
- Frank, R.J., et al., "No. 4 ESS: Mass Announcement Capability", *The Bell System Technical Journal*, Jul./Aug. 1981, vol. 60, No. 6, Part 2, pp. 1049–1081—(Chapter from a Book).
- "Chapter 1 General Description" *D.I.A.L. PRM/Release 3—Version 2* Mar. 1987 (Product Reference Manual).
- Perdue, R.J., et al., "Conversant 1 Voice System: Architecture and Applications", *AT&T Technical Journal*, Sep./Oct. 1986—(Article).
- Ozawa, Y., et al., "Voice Response System and Its Applications", *Hitachi Review*, Dec. 1979, vol. 28, No. 6, pp. 301–305—(Article).
- Brochures (TWA Crew Scheduling/PSA's Reservation System/Universal Studios Program/Dow Phone): "AVIAR The communication system that keeps you flying", VoiceMail Int'l,—(Brochure).
- "TWA Voicemail, Flight Attendants Users Guide" Aug. 1986,—(Brochure).
- Holtman, Henry, "Voice Mail Soars At TWA", *Modern Office Technology* (Reprint), Mar. 1986,—(Article).
- "Bid Results via Voicemail—Flight Deck Crew Members", May 1, 1985 (Script).
- Borden, W.S., "Flight Attendant Self Input Of Monthly Bids Via Touch Tone Telephone", *In-Flight Services Bulletin*, Sep. 15, 1985—(Memo).
- "Look Ma, no operators! Automatic voice system does many airline jobs", *Air Transport World*, Oct. 1986—(Article).
- "1,000,000 Shares Common Stock" *Voicemail International, Inc.*, Jan. 10, 1984—(Public Offering Summary).
- Levinson, S.E., et al., "A Conversational-Mode Airline Information and Reservation System Using Speech Input and Output", *The Bell System Technical Journal*, Jan. 1980, vol. 59, No. 1, pp. 119–137—(Chapter from a Book).
- Corbett, A.J., "Telephone Enquiry System Using Synthetic Speech", *University of Essex*, Dec. 1974, (Thesis).
- Sagawa, S., et al., "Automatic Seat Reservation By Touch-Tone Telephone", *Second USA Japan Computer Conference*, 1975, vol. 2, pp. 290–294—(Article).

JA0000581



U.S. Patent

Oct. 26, 1999

Sheet 2 of 2

5,974,120

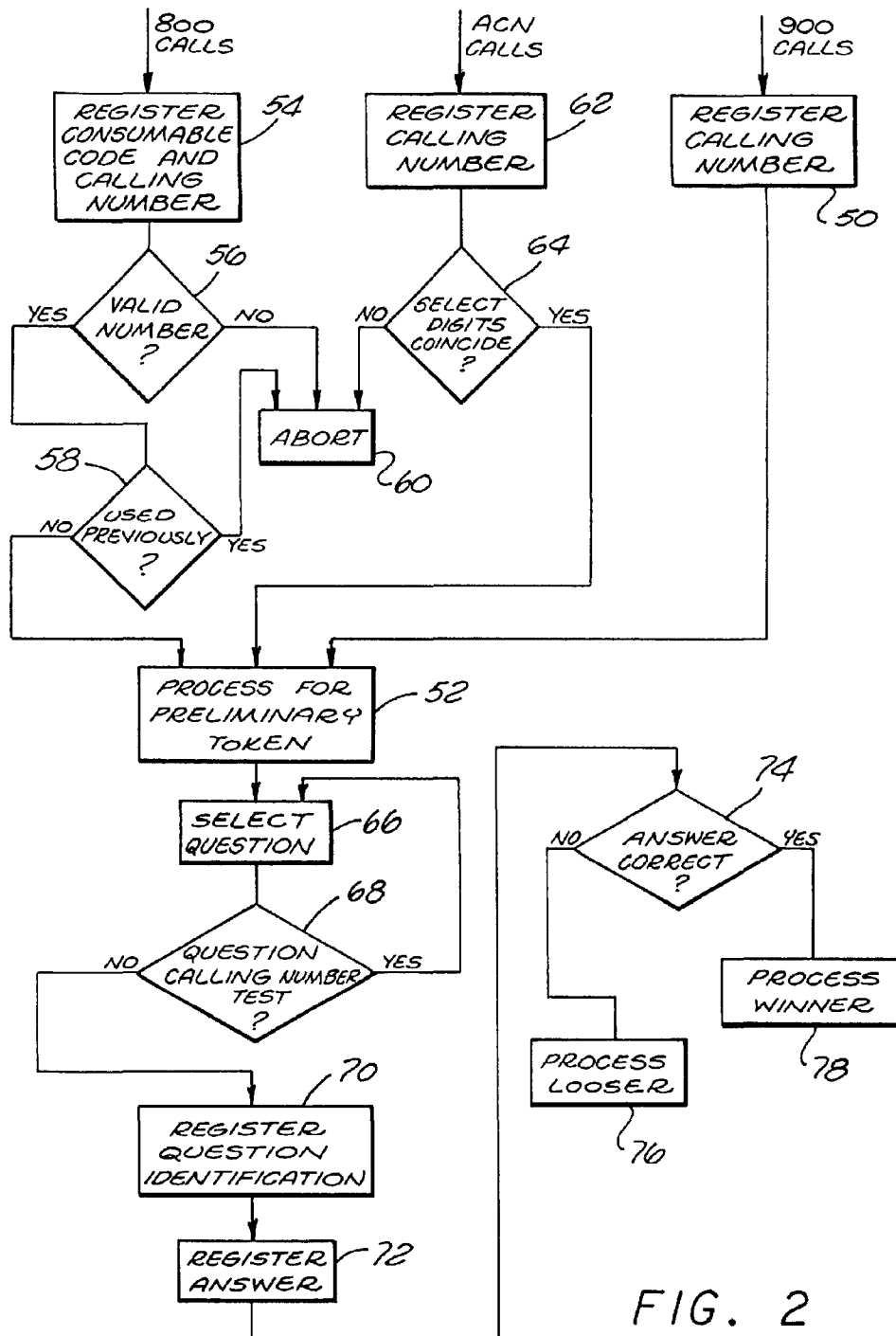


FIG. 2

5,974,120

1

**TELEPHONE INTERFACE CALL  
PROCESSING SYSTEM WITH CALL  
SELECTIVITY****RELATED SUBJECT MATTER**

This is a continuation of application Ser. No. 08/132,062, filed Oct. 4, 1993, and entitled "Telephone Interface Call Processing System With Call Selectivity", now U.S. Pat. No. 5,828,734, which is a continuation of application Ser. No. 07/779,762, filed Oct. 21, 1991, and entitled "Telephone Interface Call Processing System With Call Selectivity", now U.S. Pat. No. 5,251,252, which is a continuation of application Ser. No. 07/425,779, filed on Oct. 23, 1989, and entitled "Telephone Interface Call Processing System With Call Selectivity", now U.S. Pat. No. 5,128,984, which is continuation-in-part of application Ser. No. 312,792 filed Feb. 21, 1989, and entitled "Voice-Data Telephonic Control System" now U.S. Pat. No. 5,073,929, which is a continuation-in-part of application Ser. No. 07/194,258 filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 4,845,739, which is a continuation-in-part of Application Ser. No. 07/018,244 filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility", now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299 filed Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility", now abandoned. Also, said application Ser. No. 08/132,062 is a continuation-in-part of application Ser. No. 08/306,751, filed Sep. 14, 1994, and entitled "Multiple Format Telephonic Interface Control System", which is a continuation of application Ser. No. 08/047,241, filed Apr. 13, 1993, and entitled "Multiple Format Telephonic Interface Control System", now U.S. Pat. No. 5,351,285, which is a continuation of application Ser. No. 07/509,691, filed Apr. 16, 1990, now abandoned and a continuation-in-part of application Ser. No. 07/640,337, filed Jan. 11, 1991, and entitled "Telephonic-Interface Statistical Analysis System", which is a continuation of application Ser. No. 07/335,923, filed Apr. 10, 1989, which is a continuation of application Ser. No. 07/194,258, filed May 16, 1988, and entitled "Telephonic-Interface Statistical Analysis System", now U.S. Pat. No. 4,845,739, which is a continuation-in-part of application Ser. No. 07/018,244, filed Feb. 24, 1987, and entitled "Statistical Analysis System For Use With Public Communication Facility", now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299, filed Jul. 10, 1985, and entitled "Statistical Analysis System For Use With Public Communication Facility", now abandoned, said application Ser. No. 07/509,691, is a continuation-in-part of Ser. No. 07/260,104, filed Oct. 20, 1988, and entitled "Telephonic Interface Control System", now U.S. Pat. No. 4,930,150, which is a continuation-in-part of application Ser. No. 07/018,244, filed Feb. 24, 1987, and entitled "Statistical Analysis System for Use with Public Communication Facility", now U.S. Pat. No. 4,792,968, which is a continuation-in-part of application Ser. No. 06/753,299, filed Jul. 10, 1985, now abandoned.

**BACKGROUND AND SUMMARY OF THE  
INVENTION**

Recent years have seen a considerable growth in the use of telephonic communications. For example, in various applications, telecommunications applications have expanded to accommodate voice-digital interfaces between computer apparatus and callers at remote telephone termi-

2

nals. For example, by actuating the push buttons at a remote telephone terminal, a caller controls a computer apparatus to provide various entertainment or information. In using such a system, a caller might telephone a financial service and selectively actuate the telephone key panel to receive information on specific stocks or bonds.

Digital interface systems also have been implemented to utilize digital signals provided independently of the caller's actions. For example, the so-called "ANI" telephone equipment provides digital signals indicating a caller's telephone number. Equipment designated "DNIS" is similarly available to indicate the called number. Thus, digital signals may be provided telephonically to a system associated with individual calling terminals as for identification or other use.

Telephonic games and contests are among the various applications that have been recognized for implementation with telephone interface systems. Such games and contests may be variously presented, as in cooperation with an advertising program for a product or in a lottery format. Generally with respect to such applications, various call modes might be utilized.

Essentially, three telephonic calling modes or services are in widespread use. Specifically, caller-charge or "900" service (including "976" calls) involves a charge to the caller for each call. The "900" calling mode is useful for implementing games and contests with telephone interface systems; however, certain problems are encountered. Specifically, certain telephone terminals, e.g. pay phones, do not accommodate "900" service. Also, with respect to certain forms of games and contests, it is important to offer members of the public an alternative "free" method of participation. In general, the system of the present invention may be employed to implement "900" calling modes while accommodating "free" participation with reasonable control.

Telephone calls may be accommodated without charge using "800" service or calling mode. Generally, the "800" calling mode accommodates free calls by callers in various areas to a particular station incurring the charges. In most applications, it is important to regulate the use of the "800" calling mode. Another calling mode is the traditional method of calling, involving area-code numbers which also includes calls placed within a given area code which do not usually involve a specific charge and usually do not require dialing the area code. One of the problems associated with using the area-code calling mode for interface systems is the vast number of calls. For example, even in association with an advertising campaign, inviting members of the general public to participate in a free contest or game by telephone may prompt an overwhelming response. Accordingly, a need exists for a practical system to control and limit calls to an interface service in the traditional free area-code number mode.

Another aspect of telephonic-interface contests involves zealous or obsessive participants. For example, in a quiz contest, a zealous person might call repeatedly, researching answers to given questions until ultimately a question is repeated. At that time, the caller is ready with an answer and has an unfair advantage in the contest. Thus, a need exists for control within the interface system.

In general, the system of the present invention involves a telephone call processing system for receiving calls from a multitude of terminals in different call modes and for processing calls, as to a game or contest format, with means to limit repeat-call advantages. In a disclosed form, the system implements three calling modes to facilitate various formats



5,974,120

3

while accomplishing certain protection both with regard to the calling mode and contest formats.

#### BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings, which constitute a part of this specification, exemplary embodiments exhibiting various objectives and features hereof are set forth, specifically:

FIG. 1 is a block diagram of a system constructed in accordance with the present invention; and

FIG. 2 is a flow diagram of an operating format of the system of FIG. 1.

#### DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENT

As required, a detailed illustrative embodiment of the present invention is disclosed herein. However, telephone techniques, physical communication systems, data formats and operating structures in accordance with the present invention may be embodied in a wide variety of forms and modes, some of which may be quite different from those of the disclosed embodiment. Consequently, the specific structural and functional details disclosed herein are merely representative, yet in that regard, they are deemed to afford the best embodiment for purposes of disclosure and to provide a basis for the claims herein which define the scope of the present invention.

Referring initially to FIG. 1, a series of remote terminals T1-TN (telephone instruments) are represented (left). The terminals T1-TN may be functionally similar and accordingly only the terminal T1 is shown in any detail. The indicated terminals T1-TN represent the multitude of telephone terminals existing in association with a communication facility CO which may comprise a comprehensive public telephone network.

The communication facility CO, accommodating the individual terminals T1-TN, is coupled to a central processing station CS generally indicated within a dashed-line block. In the station CS, to illustrate operating aspects of the present invention, calls are selectively accepted and interfaced so as to accomplish a desired operating format, for example a contest or game.

Generally, calls from the individual terminals T1-TN might be in any of three modes, i.e. the "800" mode, the "900" mode or the area-code mode (traditional area code plus number or local number dialing). In the disclosed illustrative system, depending on individual calling modes, calls are selectively accepted for interface processing. Generally, the interface format accommodates "900" calls with supplemental "800" calls to accommodate both "free" access and all types of telephone terminals. In the disclosed embodiment, calls in the "800" mode are restricted in accordance with prearranged limitations. Furthermore, calls in the area-code mode (from all areas), the 800 mode and 900 mode may be limited to callers having a station number containing a predetermined digit sequence. For example, calls might be restricted to those from terminals having a telephone number ending in the digits "234".

The processing station CS also is controlled to limit the effectiveness of zealous callers. For example, in a contest formats callers may be quizzed with questions randomly drawn from an inventory. In accordance herewith, questions are not repeated to individual telephone terminals T1-TN. Thus, some control is imposed on an aggressive caller who might otherwise be given two opportunities to answer the same question.

4

Considering the system of FIG. 1 in greater detail, the exemplary telephone terminal T1 includes a handpiece 10 (microphone and earphone) and a panel 12 provided with a rectangular array of individual push buttons 14 in a conventional configuration. Of course, the handpiece 10 accommodates analog signals while the panel 12 is a digital apparatus. During an interface operation, as disclosed in detail below, the caller is queued or prompted vocally through the handpiece 10 (earphone) to provide digital responses using the buttons 14.

At this stage, some specific aspects of the communication interface are noteworthy. Essentially, as a result of telephonic dialing at one of the terminals T1-TN, the communication facility CO couples the select terminal to an audio response unit. Specifically, to illustrate various aspects, three separate audio response units are provided in the station CS to accept calls in the three distinct modes. That is, an audio response unit 18 receives calls in the "800" mode. An audio response unit 20 receives calls in the area-code dialing mode, and an audio response unit 22 receives calls in the "900" dialing mode.

It will be understood that although three separate audio response units are illustrated, systems incorporating the principles of the present invention may well incorporate various numbers of audio response units for each calling mode, with each audio response unit having the capability to accommodate a substantial number of calls as indicated by the lines from the communication facility CO in FIG. 1. Alternatively, a single composite unit might be utilized. Also, the mode or aspects of the described embodiment might well be implemented singly or in various combinations. Herein, for purposes of explanation, calls are treated individually and processed accordingly through the three audio response units 18, 20 and 22.

Generally, the audio response units 18, 20 and 22 connect callers at remote terminals T1-TN from the communication facility CO through a coupler 24 (FIG. 1, station CS, center) to an interface processor 26. Both the coupler 24 and the processor 26 are connected to a control unit 28 that is also connected to the audio response units 18, 20 and 22. Accordingly, with overall supervision by the control unit 28, the audio response units 18, 20 and 22 answer and preliminarily qualify callers from the terminals T1-TN for connection through the coupler 24 to the interface processor 26.

Upon completion of an interface connection in the disclosed embodiment, a contest format is executed by vocally prompting callers to respond with digital data. At this point, it is noteworthy that the communication facility CO also provides identification signals to the audio response units 18, 20 and 22. Specifically, digital identification signals representing numbers associated with the calling terminals T1-TN are provided by "ANI" equipment independent of any action by the caller. In the event "ANI" equipment is not available, callers may be vocally prompted to provide the digital representations by selectively depressing the buttons 14.

The telephone communication facility CO also may provide digital signals indicating the called number. Generally, such a capability involves equipment designated "IDNIS". The capability may be useful in various embodiments of the present system, as to distribute calls from a single equipment as mentioned above.

Pursuing the exemplary structure of FIG. 1 in still greater detail, the communication facility CO provides three sets of trunks or lines LA1, LA2 and LA3 respectively coupled to the audio response units 18, 20 and 22. From the audio

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000265

5,974,120

5

response units 18, 20 and 22, sets of lines LB1, LB2 and LB3 are connected to the coupler 24. Under control of the control unit 28, the coupler 24 connects individual lines 37 of the sets LB1, LB2 and LB3 to the processor 26 through lines 39.

Generally, the audio response units 18, 20 and 22 may take the form of well known telephonic structures with the capability to "answer" calls and interface callers in a preliminary way. Each of the units 18, 20 and 22 incorporate a voice generator along with some basic programmable logic capability.

The audio response unit 18 is coupled to a free-call memory 32. Generally, the unit 18 in cooperation with the memory 32 operates with the control unit 28 to qualify acceptable calls in the "800" mode.

The audio response unit 20 is connected to a select-number coincidence detector 34. These structures along with the control unit 28 test area-code mode calls. The audio response unit 22 accepts calls without initial qualification.

The system of the disclosed embodiment selectively qualifies callers depending on their calling mode. Additionally, the system responds to caller identification to enhance contest equity. Generally, the interface processor 26 poses questions to calling contestants and stores the resulting answers in a result memory 36. Questions given to contestants are selected from a memory 38 by a random number generator 40. Essentially, the memory 38 contains an inventory of questions addressable by numbers provided by the random number generator 40. The address numbers from the generator 40 are also supplied to a coincidence detector 42 that also receives the address numerals of questions previously presented to a specific caller from a record 44. Thus, before a question is presented to a caller, the number of the calling terminal is checked to assure that the same question has not previously been posed to a caller at that terminal.

If the coincidence detector 42 clears the, current question as not being repetitive, a gate 46 is qualified and the question is supplied from the memory 30 to the interface processor 26. A voice generator within the interface processor 26 then provides signals through a designated line 39, the coupler 24, a line 37, one of the audio response units and the communication facility CO to the connected remote terminal. As a result, the caller hears a simulated voice question. The answer is provided by the caller actuating the buttons 14 at the calling terminal. In that regard, the question may be in a multiple choice or true-false format to accommodate simple push button actions at the terminal.

In view of the above description of structural elements in the disclosed embodiment, a comprehensive understanding of the system may now best be accomplished by assuming certain operating conditions and describing the resulting operations. Accordingly, assume that the system CS is programmed to accommodate a relatively simple game format, that is, a sponsored contest for the promotion of a product, erg. the XYZ widget. Further assume the contest is of limited participation based either upon: the payment of a token fee ("900" calling mode), prearranged participation ("800" calling mode), lottery selection (area-code calling mode) or lottery selection in combination with either 800 or 900 calling modes. Considering exemplary possibilities of the format, the XYZ Widget might be advertised with an invitation to participate via the "900" calling mode. Alternatively, participants might be variously qualified as by select notification; however, in the exemplary format, such participants would incur a token charge imposed through

6

"900" telephonic service. To consider an example, an offering might be stated: "If your last three phone digits are 972 you may call, 1) if you wish, call 1 900 XXXX972 (\$0.95 service charge) provided your last three phone digits are 972; 2) if you have written in for a 'free to enter' you can use the one-time PIN number provided your last three phone digits are 972. In this case you can use the 'free' 800 number provided to you with your PIN number."

As indicated above, some telephone terminals do not accommodate "900" calling mode. Also, under certain circumstances, it is important to afford members of the public "free" access to participate in various games or contests. For example, such participation might be arranged by mail or other communication to provide a participant with a limited-use (i.e. one) qualification number. With use, the numbers are stored in the memory 32 and the list is checked subsequently to avoid repeat use.

A third class of contest participants might be considered lottery winners. For example, the sponsor might televise a drawing of three decimal digits to provide a sequence of three numbers. The three numbers might identify "winning" or "entitled" participants by corresponding to the last three numbers (digits) of their telephone number. For example, the drawing of the numbers "257" would entitle a single call participation from any of the telephone terminals T1-TN designated by a number, the last three digits of which are "257".

In an exemplary contest format, participants might be asked a few test questions (for minor prizes and the ability to participate in a lottery). of course, a vast variety of possibilities exist; and in that regard, interim prizes may be awarded to participants as the format proceeds from the initial call to the ultimate prize. At the present point, it is important to appreciate that the system accommodates participants using various telephone call modes with select qualification to participate in an interface format utilizing voice prompt and push-button digital communication. In accordance with the described example, the sponsor invites participants to enter using "900" calling mode service. As a part of such an invitation, persons are advised that "free" entry or participation may be gained by sending a self-addressed envelope to receive an entry number, e.g. eight digits, for use via "800" calling mode service. In the disclosed embodiment, the eight-digit numeral is coded for verification. Of course, numerous possibilities exist. As a simple example the second and sixth digits of the number might have a specific sum, e.g. seven or seventeen. That is, the second and sixth digits might be: three and four, five and two, six and one, seven and zero, nine and eight and so on. A qualifying number would be: "34726313", the second and sixth digits being four and three, respectively.

With the arrangements completed for calling entries in the "900" and "800" mode, the contest might operate for several days before being opened to area-calling participants. That is, the area-calling mode might be available only after a televised drawing entitling participation from a select group of telephone numbers for a limited period of time.

In view of the above assumptions and descriptions, consider now the operation of the system as depicted in FIG. 1 in relation to the process diagram of FIG. 2. That is, assume the system of FIG. 1 is implemented and programmed to accommodate the exemplary operations as will now be described with reference to the process diagram of FIG. 2.

First, suppose a caller at the terminal T1 places a call in the "900" mode in response to an advertisement by a sponsor promoting XYZ Widgets. Perhaps the caller will receive at least a token gift and might qualify for a major lottery prize.

JA0000586

5,974,120

7

The assumed call involves the caller actuating the buttons 14 as for example to input: "1 900 5558945". As a result, signals are provided to the communication facility CO resulting in a connection from the remote terminal T1 to the audio response unit 22. With the connection, the communication system CO also provides the audio response unit 22 with digital identification signals representative of the designation for remote terminal T1 ("212 627 2222"). The identification signals are provided by the ANI equipment within the communication facility CO and are registered by the audio response unit 22. The operation is illustrated as a process step in FIG. 2 by the block 50 (upper right) for "900" mode calls.

As suggested above, it may be desirable for a format to provide a token award to all callers in the "900" mode. Recognizing, such particulars as possibilities, in the disclosed embodiment, calls in the "900" mode are passed through the audio response unit 22 (FIG. 1) and the coupler 24 to the interface processor 26. Accordingly, the interface processor 26 receives the calling number and processes the contest format as described in detail below.

The initial step of the format common to all call modes is represented by the block 52 in FIG. 2. However, as calls in all modes are processed similarly from that point, before proceeding with the explanation, the preliminary operations attendant other calling modes first will be explained.

As explained above, certain accommodations are made for participation in the "800" (caller free) mode. Accordingly, assume a caller at the terminal T1 has been given an identification number: "34726313" for use in the "800" mode. Accordingly, the caller dials a number, e.g. "800 555 3478", actuating the terminal T1 and the communication facility CO to provide a connection with the audio response unit 18. With communication, the audio response unit actuates an internal voice generator prompting the caller to key in his assigned number, "34726313". As the digits of the number are keyed in by the caller, they are supplied from the audio response unit 18 to the control unit 28 and the free-call memory 32.

Within the control unit 28, logic is provided for verifying the identification number as proper. In accordance with the simple example explained above, the control unit 28 would simply sum the second and sixth digits to test for a total of "7". The coincidence test is represented by the query block 56 in FIG. 2. As indicated above, various codes and verification techniques are well known along with the apparatus for verifying assigned numbers.

If the control-unit 28 validates the qualification number "34726313", it is recorded in the free-call memory 32 for future checking against repeat use. Accordingly, each call in the "800" mode also involves a check or test from the audio response unit 18 to the memory 32 to determine whether or not the assigned qualification number has been previously used. The previous-use test is illustrated as a process step by the query block 58 in FIG. 2.

If the control unit 28 determines the qualification number to be invalid or the memory 32 reveals the number has been previously used, the communication is aborted by the audio response unit 18. For example, the audio response unit 18 may be actuated to provide simulated audio signals carrying a message terminating the communication. For example, the caller might be advised: "The number you have provided is not valid. Consequently, your participation cannot be accepted on that basis."

If the entered number is valid and has not been previously used, the tests indicated by the query blocks 56 and 58 (FIG.

8

2) are positive and the process again proceeds to the common step as indicated by the block 52, e.g. as to receive a token gift.

As indicated above, a third possibility for contest participation involves calling in the area-code mode. While numerous format possibilities exist, as suggested above, access for callers in the area-code mode might be limited to a relatively short period of time. For example, a television program advertising the XYZ Widget might include a drawing to select the telephone terminals from which callers may participate for a period of twenty-four hours. As indicated above, the drawing might identify the last three digits of telephone numbers for the approved terminals.

Following a relatively short time (e.g. one day) during which area-code callers may enter the contest, the contest might be concluded with the ultimate winner or winners determined. In any event, assume the presence of a caller at the terminal T2 with an approved telephone number, i.e. "212 627 2257". Somewhat as explained above with respect to other calling modes, keying operations by the caller at the remote terminal T2 result in a connection through the communication system CO to the audio response unit 20. As previously, the communication facility CO provides digital signals to the audio response unit 20 indicating the calling number (ANI). Thus, the calling number is registered as indicated by the block 62 in FIG. 2. As previously, in the event ANI equipment is not operative to serve the remote terminal T2, then the caller may be asked to key in his telephone number for subsequent verification.

From the audio response unit 20, the caller's number is supplied to the coincidence detector and storage unit 34 for a two-stage test. A first test simply seeks a coincidence between the approved number sequence (three digits) and the last three digits of the calling number. In the example, the last three digits of the calling number ("257") are compared with the select digit sequence, "257". The test is indicated by the query block 64 in FIG. 2.

As a secondary test, the unit 34 may check a record of previous use. Thus, the unit 34 simply implements test logic to accomplish these comparison-step operations with structures as well known in the prior art.

If the tests are negative, as indicated by the query block 64, the communication is aborted as indicated by the block 60. Alternatively, a favorable test again directs the system to proceed to the step of block 52 at which the process enters a common phase for all calling modes.

With the entry of a call into the common phase, the line carrying the call is connected through the coupler 24 (FIG. 1) to the interface processor 26. That is, depending on the call mode, the call is passed through one of the audio response units 18, 20 or 22 and the coupler 24 to the interface processor 26. Note that as indicated above, each of the audio response units 18, 20 and 22 is capable of accommodating a large number of asynchronous calls. Similarly, the coupler 24 is capable of connecting lines from the audio response units 18, 20 and 22 (LB1, LB2 and LB3 respectively) to the interface processor on an individual basis through lines 37 and 39.

The interface processor 26 may comprise a relatively substantial computing capability for processing many individual calls with programmed variations. The processing operation is illustrated in FIG. 2 beginning with the block 52. However, note that as the interface processor 26 receives the telephone number identifying a calling terminal (ANI) reference may be made to a data bank. Therefore, the operation might involve reference to substantial data on a

5,974,120

9

caller. Accordingly, a basis exists for several process variations accommodated by data from a bank. The block 52 represents such possibilities as well as further informing or processing callers.

With the receipt of a call at the interface processor 26, a voice generator may be actuated to specifically inform a caller, depending upon the specific format employed. Essentially, digital signals are provided to actuate a voice generator within the processor 26. Accordingly, an audio message is provided through the coupler 24, the associated audio response unit, and the communication facility CO to the connected remote terminal. Thus, the caller may be further informed or cued.

In the disclosed embodiment, concurrently with the operation of further informing the caller, the interface processor 26 actuates the random number generator 40 to provide a random address for the question memory 38. The process step is illustrated in FIG. 2 by the block 66.

The random number (identifying a question in the memory 38) is also provided to the coincidence detector 42 to test for the previous use of the question to the calling terminal. In that regard, the interface processor 26 provides the caller telephone number (ANI) to the caller record 44 which may simply take the form of a look-up table addressed by calling numbers and revealing the identification of previous questions propounded. The addresses of questions previously recorded for a calling number are supplied to the coincidence detector 42 for comparison with the current tentative question identification number. The process step is illustrated by the query block 68 in FIG. 2.

If the tentative question has been previously used for the calling terminal, a signal is provided from the coincidence detector 42 to the interface processor prompting a repeat operation by the random number generator 40 to select another question.

Alternatively, if the tentative question is not a repeat, then the coincidence detector 42 qualifies the gate 46 and the tentative question is supplied to the interface processor 26 for actual use. Note that upon the occurrence of an approved question, the coincidence detector also supplies a signal to the call record 44 which records the identification number of the question. The process step is illustrated in FIG. 2 by the block 70.

With the provision of signals representing a question through the gate 46 to the interface processor 26, the internal voice generator is actuated to propound the question to the caller. Recognizing the vast possibilities for contest formats, one or more rather difficult questions might be propounded to isolate lottery participants. Alternatively, a relatively easy question may be propounded as a minor obstacle to participation in the final phase of the contest. In any event, as prompted or cued, the caller responds using the buttons 14 and the response is registered for testing within the interface processor 26. The process steps are indicated by the block 72 and the query block 74 in FIG. 2. The results of the tests are then stored in the interface result memory 36. Note that in the interests of human perception, a printed record may be developed concurrently with the qualification of lottery participants.

Final processing to determine a winner or winners may involve any of various operations as a drawing, an event, and so on. Accordingly, as indicated by the blocks 76 and 78, final determinations are made of winners and losers with predetermined prize allocations. Thus, the system of the present invention enables effective regulation and control of interfaces between persons at telephone stations and a

10

central processing apparatus. Calls in various modes are accommodated with appropriate tests, and interface data (e.g. test questions) are qualified.

In view of the above descriptions, it will be apparent that the disclosed embodiment is susceptible to considerable modification in the implementation of the present invention in conjunction with a telephone system to accommodate caller interface operations. Although the disclosed embodiment is directed to a contest, it will be apparent that aspects of the system may be variously embodied to accommodate any of a variety of telephone interface operations. Furthermore, it will be apparent that while the disclosed embodiment comprises specific elements and configurations, any of a variety of structures might well be utilized. Accordingly, the scope hereof is deemed to be as set forth in the claims below.

What is claimed is:

1. A telephone interface system for individually interfacing callers at a multitude of remote terminals for voice-digital communication through a telephone communication facility in accordance with an interface format, and involving digital signals including dialed number identification signals and calling number identification data provided automatically by said telephone communication facility, said system comprising:

communication means for receiving said dialed number identification signals to select said interface format from a plurality of formats and establishing telephone communication with currently active callers at certain of said multitude of remote terminals through said telephone communication facility;

means for receiving said calling number identification data for said callers and comparing against a database of stored calling number identification data;

means for providing identification signals to said communication means indicative of said currently active callers;

memory means for storing caller cues and use indications for said caller cues in relation to said callers as identified by said identification signals and answer data provided by said callers in response to said caller cues;

cue means for receiving said caller cues to provide voice signals through said communication means to prompt said answer data from said currently active of said callers in the form of digital data signals;

means for selecting a current caller cue from said memory means for one of said currently active callers for application to said cue means under control of said identification signals in order to prevent duplicate provision of a caller cue to a particular caller under control of said identification signals; and

means for processing at least certain of said answer data provided by said callers.

2. A telephone call processing system for receiving calls from a multitude of terminals in different call modes including a "900" caller-charge call mode and at least an "800" toll free call mode for processing to an interface format and involving digital signals including digital signals indicative of DNIS, said system comprising:

first response unit for receiving calls in said "900" caller-charge call mode under control of DNIS for processing to common operations of said interface format;

second response unit for receiving calls in said "800" toll free call mode under control of DNIS for processing to common operations of said interface format;

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000268

5,974,120

**11**

voice generator means for providing different automated greetings under control of DNIS to callers calling in said "900" caller-charge call mode and callers calling in said "800" toll free call mode and prompting said callers calling in at least said "800" call mode to enter data; and

processing means for processing at least certain of said data entered by said callers.

3. A telephone call processing system according to claim 2, further comprising:

qualification means for testing for approval at least certain of the data entered by the callers calling in said "800" toll free call mode.

4. A telephone call processing system according to claim 3, wherein said at least certain of the data entered by the callers is further tested against a record of previous use.

5. A telephone call processing system according to claim 3, wherein said qualification means further implements a test with respect to a limit on a period of time.

6. A telephone call processing system according to claim 5, wherein said at least certain data entered by the callers is further tested against a record of previous use.

7. A telephone call processing system according to claim 2, wherein said processing means processes at least certain of said data entered by said callers to isolate a subset of

8. A telephone call processing system according to claim 7, wherein said processing means processes on-line at least certain of said data entered by said callers to isolate a subset of callers.

9. A telephone call processing system according to claim 2, wherein said interface format is an information service format.

10. A telephone call processing system according to claim 2, wherein said first response unit and said second response unit are incorporated within a single composite unit.

11. A telephone interface system for individually interfacing callers at a multitude of remote terminals for voice-digital communication through a telephone communication facility in accordance with an interface format, and involving digital signals including dialed number identification signals provided automatically by said telephone control of said identification signals; and

means for processing at least certain of said answer data provided by said callers.

12. A telephone interface system according to claim 11, wherein said comparing means receives data entered by the callers as at least a part of said identification signals and tests the data entered by the callers for approval.

13. A telephone interface system according to claim 12, wherein said comparing means further implements a test based upon a limited period of time.

14. A telephone interface system according to claim 12, wherein said comparing means further tests the data entered by the callers against a record of previous use.

15. A telephone interface system according to claim 11, wherein said interface format is an information service format.

16. A telephone interface system according to claim 11, wherein said means for processing processes at least certain of said answer data provided by said callers to isolate a subset of callers.

17. A telephone interface system according to claim 16, wherein said means for processing processes on-line at least certain of said answer data to isolate a subset of callers.

18. A telephone interface system for individually interfacing callers at a multitude of remote terminals for voice-

**12**

digital communication through a telephone communication facility, said system comprising:

communication means for establishing telephone communication between callers at certain of said multitude of remote terminals and a select data format selected from a plurality of data formats through said telephone communication facility based on digital signals (DNIS) automatically provided by said telephone communication facility to access said select data format; said select format in one form thereof preventing duplication of caller cues;

means for providing identification signals to said communication means indicative of currently active of said callers;

memory means for storing one or more caller cues and use indications for said caller cues in relation to said currently active of said callers as identified by said identification signals;

cue means for receiving said caller cues to provide responses from said currently active callers in the form of digital data signals; and

means for selecting a caller cue from said memory means for said currently active caller for application to said cue means under control of said identification signals and said use indications stored in said memory means for said currently active caller whereby to limit and control caller cues provided to individual callers based upon cues previously provided to and identified with said individual callers.

19. A telephone call processing system for receiving calls through a telephonic communication facility from a multitude of terminals in a toll free call mode such as an "1800" call mode for processing data in accordance with an operating process format and involving digital signals including DNIS signals, said system comprising:

receiving structure for receiving calls in different call modes wherein digital signals indicative of dialed numbers identify at least two of a plurality of toll free called numbers and a plurality of caller charge called numbers;

voice generator coupled to said receiving structure for prompting callers whereby callers enter data in response to voice prompts;

connection structure for connecting substantially all of said callers calling at least two of said plurality of toll free called numbers and said caller charge called numbers to a common phase of an interface format; and

audio control unit coupled to said communication means for providing distinct automated greetings to callers calling at least two of said plurality of toll free called numbers and said caller charge called numbers under control of said digital signals including DNIS signals prior to connection to said common phase of said interface format.

20. A telephone call processing system according to claim 19, further comprising:

means for processing data entered by said callers to isolate a subset of callers.

21. A telephone call processing system according to claim 19, further comprising:

memory for storing certain data provided by said callers.

22. A telephone call processing system according to claim 19, wherein said receiving structure receives select digits of caller telephone numbers automatically provided by digital signals from said telephonic communication facility.

JA0000589

5,974,120

## 13

23. A telephone call processing system according to claim 22, further comprising:  
memory for storing said select digits of caller telephone numbers.

24. A telephone call processing system according to claim 19, wherein said interface format is one of a plurality of formats selected under control of said DNIS signals.

25. A telephone call processing system according to claim 19, further comprising, qualification structure for testing caller identification data entered during calls calling at least two of said plurality of toll free called numbers.

26. A telephone call processing system according to claim 25, wherein said qualification structure further implements a test based on a limited period of time.

27. A telephone call processing system according to claim 25, wherein said qualification structure further tests the caller identification data against a record of previous use.

28. A telephone call processing system for receiving calls through a telephonic communication facility from a multitude of terminals in a toll free call mode for processing data in accordance with an operating process format and involving digital signals including called number identification signals (DNIS) automatically provided by said telephonic communication facility, said system comprising:

first response unit means for receiving calls in said toll free call mode wherein said called number identification signals (DNIS) indicative of at least one of a plurality of distinct called numbers identifies said operating process format;

voice generator means for prompting callers to enter data in response to voice prompts wherein said data entered by said callers is used to update data for said callers in a database relating to said callers;

qualification means for qualifying at least said calls utilizing said one of said plurality of distinct called numbers in said toll free call mode received by said first response unit to provide qualified calls based upon a test of caller entered identification data including caller pin-number data based upon limited use;

second response unit means for receiving calls in said toll free call mode wherein called number identification signals (DNIS) indicative of one other of said plurality of distinct called numbers identifies said operating process format;

means for concurrently processing calls received by said first response unit means and said calls received by said second response unit for concurrent processing of data in accordance with common operations of said operating process format.

29. A telephone call processing system according to claim 28, further comprising:

audio control unit for providing an automated greeting under the control of said called number identification signals (DNIS) to callers calling at least one of said distinct called numbers whereby said automated greeting is specific to said one of said plurality of distinct numbers; and

a third response unit means for receiving calls in an area code call mode, said calls received by said third response unit means concurrently processed with said calls received by said first and second response unit means in accordance with said common operations of said select operating process format.

30. A telephone call processing system according to claim 29, wherein said select operating process format is one selected from a plurality of distinct operating process formats.

## 14

31. A telephone call processing system according to claim 28, wherein said select interface format is one selected from a plurality of distinct operating process formats.

32. A telephone call processing system according to claim 28, wherein said means for concurrently processing processes data provided by callers to update a databank relating to said callers.

33. A telephone call processing system according to claim 28, wherein said means for concurrently processing comprises multiple comparative processing operations to isolate a subset of callers.

34. A telephone call processing system according to claim 28, wherein at least select digits of caller telephone numbers are automatically provided by digital signals from the telephonic communication facility.

35. A telephone call processing system according to claim 28 wherein said first response unit means and said second response unit means are incorporated within a single composite unit.

36. A telephone call processing system for receiving calls from a multitude of terminals for processing to an interface format and involving digital signals including digital signals associated with said terminals as for identification or data, said system comprising:

cue means for prompting responses to questions, from said terminals in the form of digital signals as data;

question selection means for selecting individual questions from a plurality of questions for actuating said cue means, said selection means including a random selection means to select said individual questions;

test means for testing individual questions as correct or incorrect;

processing means to process responses to said individual questions to isolate a subset of callers; and

memory means for storing data and control means for restricting the extent of access to said system based on at least one of caller provided data or calling terminal data automatically provided by said telephonic communication facility.

37. A telephone call processing system for receiving calls through a telephonic communication facility from a multitude of terminals in a pay to dial call mode for processing data in accordance with any of a plurality of operating process formats and involving digital signals including DNIS, said system comprising:

first response unit means for receiving calls in said pay to dial call mode wherein digital signals indicative of at least one of a plurality of distinct called numbers (DNIS) identify one of said plurality of operating process formats;

voice generator means for prompting callers whereby said callers enter data in response to voice prompts;

qualification means for qualifying at least said calls utilizing said one of said plurality of distinct called numbers (DNIS) in said toll free call mode received by said first response unit to provide qualified calls;

second response unit means for receiving calls in said pay to dial call mode wherein digital signals indicative of one other of said plurality of distinct called numbers (DNIS) identify another of said plurality of operating process formats;

means for processing calls received by said first response unit means and said calls received by said second response unit for concurrent processing of data in accordance with certain common processing operations of said one and said another of said operating process formats.

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000270

5,974,120

15

38. A telephone call processing system according to claim 37, further comprising:

audio control unit for providing an automated greeting under the control of said DNIS to callers calling at least one of said distinct called numbers whereby said automated greeting is specific to said pay to dial mode.

39. A telephone call processing system according to claim 37, wherein said voice generator means prompts responses to at least one question in the form of interactively entered data provided by said callers calling at least one of said distinct called numbers; and said system further comprises: means for storing said interactively entered data.

40. A telephone call processing system according to claim 37, further comprising:

means for providing identification signals to said qualification means indicative of currently active of said callers;

memory means for storing one or more caller cues and use indications for said caller cues in relation to said currently active of said callers as identified by said identification signals;

cue means for receiving said caller cues to provide responses from said currently active callers in the form of digital data signals; and

means for selecting a caller cue from said memory means for said currently active caller for application to said cue means under control of said identification signals and said use indications stored in said memory means for said currently active caller whereby to limit and control caller cues provided to individual callers based upon cues previously provided to and identified with said individual callers.

41. A telephone call processing system according to claim 37, wherein said means for processing calls processes caller entered data to isolate a subset of said callers.

42. A telephone call processing system according to claim 37, wherein said means for processing calls utilizes multiple comparative processing operations to isolate said subset of callers.

43. A telephone call processing system according to claim 37, wherein said one of said plurality of operating processing formats is a form of an information service format.

44. A telephone call processing system according to claim 37, wherein said means for processing calls isolates a subset of callers based upon data entered by said callers responsive to prompting by said voice generator means and wherein said means for processing calls further isolates a sub-subset of callers also responsive to further data entered by said callers responsive to further prompting by said voice generator means.

45. A telephone call processing system according to claim 37, wherein qualification by said qualification means of said calls includes qualification of caller provided identification data.

46. A telephone call processing system according to claim 37, wherein said pay to dial call mode is a "900" call mode.

47. A telephone call processing system according to claim 37, further comprising:

audio control unit for providing a preliminary automated greeting under the control of said DNIS to callers calling at least one of said distinct called numbers whereby said preliminary automated greeting is specific to said one of said plurality of distinct numbers and prior to execution of common operations of said one operating process format.

48. A telephone call processing system according to claim 37, wherein said system further receives calls with respect to

16

another operating process format accessed in a toll free mode under control of said DNIS.

49. A telephone call processing system according to claim 48, wherein said toll free mode is an 800 number.

50. A telephone call processing system according to claim 49, wherein said callers to said toll free number provide qualification data.

51. A telephone call processing system according to claim 49, wherein said qualification number is tested for a use limit.

52. A telephone call processing system according to claim 37, wherein qualification means tests data entered by the callers for approval.

53. A telephone call processing system according to claim 52, wherein the qualification means further tests the data entered by the callers against a record of previous use.

54. A telephone call processing system according to claim 52, wherein the qualification means further implements a test with respect to a limited period of time.

55. A telephone call processing system according to claim 37, wherein said first response unit means and said second response unit means are incorporated within a single composite unit.

56. A process for interfacing, through a telephone-communication facility, (1) callers who are at a multitude of remote terminals for voice-digital communication with (2) a system for prompting the callers with caller cues, said process comprising the steps of:

establishing telephone communications between the callers and the system, the system having a receiving unit for receiving digital signals including dialed-number identification signals provided automatically from the telephone-communication facility;

utilizing the dialed-number identification signals to identify one from a plurality of numbers dialed by the callers;

also receiving at the receiving unit identification signals relating to the callers;

testing said identification signals relating to the callers to determine whether to qualify the callers for access to at least a portion of operations of the system;

utilizing, for qualified callers, the identification signals relating to the callers, to avoid prompting certain callers with a certain previously provided cue or cues; and providing to the qualified callers at least one other caller cue.

57. A process according to claim 56, wherein the identification signals relating to the callers comprise a number entered by each of the callers to determine if that caller is eligible to participate.

58. A process according to claim 56, wherein the process further implements a test with respect to a limit on a period of time.

59. A process according to claim 56, wherein during the testing step, the number entered by the caller is further tested to determine if it has exceeded a limit on extent of access, during a limited period of time.

60. A process according to claim 56, wherein during the testing step, the process further tests the identification signals against a record of previous use.

61. A process according to claim 56, wherein the identification signals relating to the callers are calling number identification signals automatically provided by the telephone-communication facility.

62. A process according to claim 56, further comprising the step of:

JA0000591

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000271

5,974,120

17

processing, to isolate a subset of callers, caller-response signals responsive to certain of the plurality of caller cues.

63. A process according to claim 62, wherein during the processing step, the response signals are processed on-line.

64. A process according to claim 62, wherein during the processing step, the response signals are processed off-line.

65. A process according to claim 56, wherein the dialed-number identification signals identify both "800" and "900" called numbers.

66. A process according to claim 56, further comprising the step of: selecting from a plurality of operating process formats, utilizing the dialed-number identification signals received from the telephone-communication facility, a select format.

67. A process for interfacing, through a telephone-communication facility, (1) callers who are at a multitude of remote terminals for voice-digital communication with (2) a system for prompting the callers with caller cues, said process comprising the steps of:

receiving identification signals at a receiving unit of the system, the identification signals indicating telephone numbers of the multitude of remote terminals, the identification signals being automatically provided by the telephone-communication facility;

testing, to determine whether to qualify the callers for voice-digital communication with the system, the identification signals that indicate the telephone numbers;

utilizing, for qualified callers, the identification signals that indicate the telephone numbers to avoid prompting certain callers with a certain previously provided cue or cues; and

providing to the qualified callers at least one other caller cue.

68. A process according to claim 67, wherein during the testing step, the process further tests, against a record of previous use, the identification signals.

69. A process according to claim 67, wherein during the receiving step, the receiving unit also receives called-number identification signals that are automatically provided by the telephone-communication facility, and utilizing the called-number identification signals to identify a select format from a plurality of formats.

70. A process according to claim 69, further comprising the step of:

testing the identification signals that indicate the telephone number, to determine whether to qualify the callers to access the select format, by testing to determine whether each caller has exceeded a limit on use; and

further implementing a test based on a limit on a period of time.

71. A process according to claim 69, wherein the called-number identification signals identify both "800" and "900" called numbers.

72. A process according to claim 67, further implementing a test with respect to a limit on a period of time.

73. A process according to claim 67, further comprising the step of:

18

processing, to isolate a subset of callers, response signals provided by the callers in response to certain of the plurality of caller cues with which the callers are prompted.

74. A process according to claim 73, wherein during the processing step, the response signals are processed on-line.

75. A process according to claim 73, wherein during the processing step, the response signals are processed off-line.

76. A process for interfacing, through a telephone-communication facility, (1) callers who are at a multitude of remote terminals for voice-digital communication with (2) a system for prompting the callers with caller cues, said process comprising the steps of:

receiving, at a receiving unit of the system, identification signals relating to the callers that include (a) calling signals indicating telephone numbers of the multitude of remote terminals, the calling signals being automatically provided by the telephone-communication facility and (b) signals that represent data entered by the callers at the multitude of remote terminals;

testing the identification signals relating to the callers to determine whether to qualify the individual callers to use all or part of the process, by testing to determine if the calling signals indicating each of the telephone numbers indicate a valid identification number for each caller that has not exceeded a limit on use, and by further implementing a test based on a predetermined period of time;

utilizing for qualified callers, to avoid prompting certain callers with a certain previously provided cue or cues, the calling signals that indicate the telephone numbers; and

providing to the qualified callers at least one other caller cue.

77. A process according to claim 76, further comprising the step of:

also receiving called-number identification signals that are automatically provided by the telephone-communication facility; and

utilizing the called-number identification signals to select a format from a plurality of formats and connecting the callers at the multitude of remote terminals with the format.

78. A process according to claim 77, wherein the plurality of formats are accessed by both 800 and 900 calling modes, callers entering data in response to the caller cues with which they are prompted.

79. A process according to claim 76, further comprising the step of:

processing, to isolate a subset of callers, the data entered by the callers in response to caller cues.

80. A process according to claim 79, wherein during the processing step, the data entered by the callers is processed on-line.

81. A process according to claim 76, wherein the limit on use is one.

\* \* \* \* \*

JA0000592



Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000272

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,974,120  
DATED : October 26, 1999  
INVENTOR(S) : Ronald A. Katz

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 4,

Line 60, "IDNIS" should be -- DNIS --.

Column 5,

Line 38, "the, current" should be -- the current --.

Line 57, "erg." should be -- e.g. --.

Column 7,

Line 6, "thelaudio" should be -- the audio --.

Column 8,

Line 16, "Concluded" should be -- concluded --.

Line 66, "toga" should be -- to a --.

Column 12, claim 19,

Line 32, "1800" should be -- 800 --.

Column 16, claim 59,

Line 58, "to" should be -- of --.



Attest:

*Brenda Moore*

Attesting Officer

Signed and Sealed this

Twenty-sixth Day of March, 2002

*James E. Rogan*

JAMES E. ROGAN

Director of the United States Patent and Trademark Office

JA0000593

Katz v. Citibank, et al.  
Civil Action No. 5:05-CV-142-DF

KTL0000273

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 5,974,120  
DATED : October 26, 1999  
INVENTOR(S) : Ronald A. Katz

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 11.

Line 42, delete "control of".

Line 43, delete "said identification signals; and" and insert the following:

-- communication facility, said system comprising:

communication means for receiving said dialed number  
identification signals to select said interface format from a plurality of  
formats and establishing telephone communication with currently active  
callers at certain of said multitude of remote terminals through said  
telephone communication facility;

means for providing identification signals to said communication  
means indicative of said currently active callers;

means for comparing said identification signals against a database  
of stored identification data;

memory means for storing caller cues and use indications for said  
caller cues in relation to said callers as identified by said identification  
signals and additional answer data provided by said callers in response to  
caller cues;

cue means for receiving said caller cues to provide voice signals  
through said communication means to prompt said answer data from said  
currently active of said callers in the form of digital data signals;

means for selecting a current caller cue from said memory means  
for one of said currently active callers for application to said cue means  
under control of said identification signals in order to prevent duplicate  
provision of a caller cue to a particular caller under control of said  
identification signals; and --.



Attest:

*Virginia Tolbert*

Attesting Officer

Signed and Sealed this

Sixth Day of August, 2002

A handwritten signature in black ink, appearing to read "James E. Rogan", is written over a horizontal line.

JAMES E. ROGAN  
Director of the United States Patent and Trademark Office

JA0000594

**United States Court of Appeals  
for the Federal Circuit**

*Ronald A. Katz Technology v DHL Express (USA), Inc., 2013-1510, -1543*

**CERTIFICATE OF SERVICE**

I, John C. Kruesi, Jr., being duly sworn according to law and being over the age of 18, upon my oath depose and say that:

Counsel Press was retained by COOLEY LLP, Attorney for Appellant to print this document. I am an employee of Counsel Press.

On **October 8, 2013**, Counsel for Appellant has authorized me to electronically file the foregoing **Opening Brief of Appellant (Confidential and Non-Confidential versions)** with the Clerk of Court using the CM/ECF System, which will serve via e-mail notice of such filing to any of the following counsel registered as CM/ECF users:

Dechert LLP  
Christopher S. Ruhland  
christopher.ruhland@dechert.com  
Edwin V. Woodsome, Jr.  
ed.woodsomes@dechert.com  
US Bank Tower  
633 West 5<sup>th</sup> Street, 37<sup>th</sup> Floor  
Los Angeles, CA 90071-2013  
(213) 808-5700 (telephone)  
(213) 808-5760 (facsimile)

Dechert LLP  
Daniel B. Epstein  
Daniel.epstein@dechert.com  
2440 W. El Camino Real, Suite 700  
Mountain View, CA 94040  
(650) 813-4800 (telephone)  
(650) 813-4848 (facsimile)

Dechert LLP  
Stephen R. Dartt  
stephen.dartt@dechert.com  
300 W. 6<sup>th</sup> Street, Suite 2010  
Austin, TX 78701  
(512) 394-3000 (telephone)  
(512) 394-3001 (facsimile)

By agreement between the parties, the confidential version will be served via email on the above counsel on this date. Additionally, two paper confidential copies will also be mailed to counsel on the same date copies are sent to the Court.

Upon acceptance by the Court of the e-filed document, six paper confidential copies will be filed with the Court, via Federal Express, within the time provided in the Court's rules.

October 8, 2013

/s/John C. Kruesi, Jr.  
Counsel Press

**CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME  
LIMITATION, TYPEFACE REQUIREMENTS, AND TYPE STYLE  
REQUIREMENTS**

This brief complies with the type-volume limitation of Federal Rule of Appellate Procedure 32(a)(7)(B) because this brief contains 11,587 words excluding the parts of the brief exempted by Federal Rule of Appellate Procedure 32(a)(7)(B)(iii) and Federal Circuit Rule 32(b).

This brief complies with the typeface requirements of Federal Rule of Appellate Procedure 32(a)(5) and the type style requirements of Federal Rule of Appellate Procedure 32(a)(6). The brief has been prepared in a proportionally spaced typeface using Microsoft Word in 14-point Times New Roman font.

Dated: October 8, 2013

/s/ Sarah J. Guske

Sarah J. Guske  
Cooley LLP

Attorneys for Appellant  
Ronald A. Katz Technology Licensing, L.P.